

# AMERICAN RAILROAD JOURNAL.

STEAM NAVIGATION, COMMERCE, MINING, MANUFACTURES.

HENRY V. POOR, Editor.

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## American Railroad Journal.

PUBLISHED BY J. H. SCHULTZ & CO., No. 9 SPRUCE ST.

Saturday, July 30, 1853.

### Railroads and Railroad Negotiations.

The immense sums we are investing in railroads naturally suggest apprehensions on the part of the more timid of our capitalists, that we are overdoing the business. They can find no precedent for the safe expenditure of such vast sums in works of a permanent character, which will require a long course of years to replace by their earnings, their original cost. This class of persons, regularly, every year, figure out to a demonstration, that a crisis is before us, and that a disastrous revulsion must soon overtake the majority of our roads, involving a great loss by the depreciation in value of their stock, and in some cases of their credits.

The reasoning by which these conclusions are arrived at is as follows: "Excessive investments in every kind of business are certain to be followed,

in the end, by great losses, as all experience proves. Now we are investing an unprecedented amount in railroads, and these works cannot escape the application of an universal law in commercial affairs." This is the manner in which a class among us reason, and with a certain plausibility, too, because as applied to nearly all other transactions, their premises are mainly correct. The fallacy lies in the fact that the premises assumed, are *not* correct in their application to railroads. Were it otherwise, our onward course would have been cut short long ago. For five years past have we been moving forward with a constantly accelerating pace, and with uninterrupted success. Never were our railroads, and every other interest in the community, in so prosperous a condition as at the present time. Every branch of business is in full activity. This is emphatically the case, with the most important of all, agriculture, upon which all others are based. There never was a period in which the aggregate production of the soil was so great, nor when an equal quantity was produced with the same amount of labor. The same may be said of all other departments of industry, and we are only saved from the inconveniences of an excessive surplus in all, by a regular and active foreign demand for our great staples.

The fact is that as far as the great mass of our roads are concerned, we passed the critical period long ago. This was when the great majority of them were *simultaneously* in progress; when they were calling for vast sums of money to carry them forward, and before they were able to make any return upon their cost, or to be of any general benefit to the community. This was the period when a crisis threatened. Having passed it, the dangers then, and at present anticipated, by certain parties, are left far behind. New ones may beset us, but not from what we have done, but from what we may do.

We have now in operation in all the states some 15,000 miles of railroad, which have cost say \$500,000,000. Now taking the net revenue of these roads, and the *incidental*, which are the main advantages flowing from them, and there is no doubt that these roads produce, annually, more than the entire expenditure in *new works*. Assum-

ing, too, which is not probably wide of the fact, that the whole investment in the United States has more than replaced itself, by the revenue it has yielded, and in the diminished cost of transportation, and we have not only our original capital in hand, for new works, but we have in addition the yearly income of our roads.

Here, then, is the great secret of our present prosperity. We shall only become the stronger as we advance, provided we confine ourselves to strictly legitimate and paying projects. Our roads have made our people rich and strong, because they have enabled them to avail themselves of their resources. They have given markets where none previously existed, and have often saved half the value of a crop, or an article of merchandise, by the diminished cost of transportation. Our markets are often distant a thousand miles from the producers, and from the great uniformity in the pursuits of the great mass of our people, a majority of articles entering into consumption have to be transported an equal distance. Railroads in the United States, therefore, are not only indispensable to the development of our vast resources, to the personal convenience of our people, but add immediately and in an extraordinary degree to their wealth.

Such we believe to be correct views of the financial condition of our country and of our railroads; views the soundness of which has been fully demonstrated by the history of these works, and the steady advance that we have been making for the past six or eight years in all the elements of prosperity. What we have done has, on the whole, been well done. The cost of our railroads has not been felt to be a burden, for the reason that they have so rapidly, in the manner we have stated, repaid their cost. If, when our present magnificent systems were only half completed, when the great majority of our roads were struggling to obtain the means for their construction, and those in operation were without those connections that have since added such an increase to their revenues, our people could stand under the load resting upon them, what can they not do now that these roads are all completed and in operation, and by their success calling to their support not only the capital of the United States, but the whole world; and still more, when the roads them-

selves are rapidly returning into the pockets of those constructing them their first cost?

So much for our relations to the past. Were we to take "an account of stock," at the present time, a satisfactory balance would be found on the right side. Mistakes have been committed, and losses sustained, but these have not affected the general result. Up to the present time the investments in railroads have been good ones, advantageous to our people in an eminent degree, and satisfactory to the capitalists who have invested in them. The latter have almost invariably fared better than they expected. They are receiving for their money a high rate of interest, and in most instances, at a handsome advance over first cost. As far as they have aided in the construction of our works, all parties to the transactions have been mutually benefitted.

The past therefore is well. It is in the *present* and *future* that our danger lies; and there can be no doubt that we are now much more liable to run to excesses and commit serious mistakes than we were two or three years back. Five years ago railways were comparatively unpopular. They attracted little attention, and their success, as investments of capital, was regarded as problematical. The means for their construction was consequently furnished sparingly, and to such projects only that seemed to present all the guaranties of safety. Under such circumstances, the first investments in them could hardly fail to turn out well. The unparalleled success which has attended their construction has completely changed the tone of public opinion in reference to them. Distrust and doubt has given place to a policy of unlimited confidence. Railroads are believed to be very practicable, and those immediately interested in their construction easily work themselves into the belief that they are sure to *pay* under *all* circumstances. This feeling is shared to a very considerable extent by capitalists themselves. It is easy to see, therefore, that we are now much more likely to embark in visionary, unprofitable or uncalled for enterprises, than at any other period in our history. We have everything to urge us forward; confidence arising from past success, an easy money market, the hope of making money by the construction of roads, and an earnest desire on the part of every community without them, to secure the social advantages which they confer. If, with all these impulses to urge us forward, we should steer clear of mistakes, even to the degree that we have for the time past, it would certainly be marvellous. We cannot expect to, unless our caution keeps pace with the increased temptations, and with the greater danger we are under of being deceived and mistaken. There is no doubt that in certain localities at least, it would be useful to follow the popular sentiment in reference to railroads, and we know how hard it is to resist the general sentiment of a community, or for individuals not to be affected by its contagion. Hence the great duty of those who, from being far removed from the immediate excitement attendant upon the construction or the agitation of these projects, and from having little immediate interest at stake, of pointing out the danger into which we are liable to fall, and of enforcing the observance of a policy which will preserve our whole system in a sound and healthy condition.

We would by no means convey the idea, that

because we are building a great number of railroads, we are building more in the aggregate than the wants of the country require. The state of Ohio will soon have 3000 miles in operation. The state of Tennessee only about 150 miles. The roads of Ohio, on the average, will pay well, and will all be required to meet the wants of the people. Now there is no reason why at least 2000 miles would not meet with equally profitable employment in Tennessee, and why they should not prove a safe investment for capital. The same may be said of Kentucky, Alabama, Missouri, Mississippi, and in fact of nearly all the southern and western states. But railroads are wanted in the east as well as in the south and west. Four thousand miles of railroad would this day find profitable employment in the state of Pennsylvania, (where there are not over 1250 in actual operation,) and as many in Virginia. We have only commenced the construction of these works. We shall go on with regular and uniform pace till we have 50,000 miles of road! They will penetrate every section of country, and will in the end become the common highway of our people. It is not the number of miles that we may build that should create alarm, but their *over* construction in districts already sufficiently supplied with these works.

This tendency has already manifested itself in Ohio, and in western New York. There is no doubt that railroads have been pushed to an unwise extent in Massachusetts. But the railroads in this state were built entirely with *domestic* capital, and when the parties interested in a road furnish the means of construction, the propriety of their course concerns them alone. If they commit a mistake it will not be apt to be repeated. When men pay as they go, they will not blunder twice. They cannot extend themselves so as to create any serious injury to the public. When, on the other hand, those interested in a road expect foreigners to build it, the expediency of the project becomes at once a proper object for criticism, otherwise the community may be led to undertake the construction of works not needed, and which may require an amount of capital for their completion, far beyond the ability of the public to supply. So long as we confine ourselves to legitimate projects, we have nothing to fear. But the moment we take up those of a different class, we start on a course which can only end in a financial crisis, disastrous alike to railroads, and to every interest in the community.

We state these general principles, partly for the benefit of parties investing in our roads, and partly for the purpose of indicating the course we shall pursue in reference to every project that may come before the market.

The highest good of our roads is best promoted by maintaining the whole system in a sound condition. If a company does not present all the guaranties of safety, it is much better for them to postpone their project, than to embark in a hazardous one, with the imminent risk of losing all they put into it. If a weak one is attempted to be foisted upon the public, we owe it as a duty to a large class of persons, who rely upon us for information, to expose it. Now, we do not presume to say that every security must pass the ordeal of our opinion to be negotiated. We may be mistaken as to facts, and come to a wrong conclusion in a given case; but we do say that if a manifestly unsafe

project be presented, and its unsoundness exposed, capitalists will not touch it; or if any suggestion of wrong be made, upon good grounds, they will be very apt to take the matter into their own hands, and probe it to the bottom. We therefore urge upon all companies in presenting their claims the importance of making out a good case beyond all cavil, assuring them in such case that the opinion of an individual, or the press, can have but little influence in opposition to real merit.

When parties engaged in the construction of a road, build it with their own means, their conduct is no concern of ours. So, too, where they furnish a sufficient sum to render entirely secure all they may seek to borrow. They may act very unwisely in our opinion, but we are not the judge of the propriety of their conduct. It is only when the public have an interest at stake, when the basis offered for a loan is of doubtful sufficiency, that we claim the right to interpose. When a company may be engaged upon what we consider a *purely* rival work, we may express our opinions freely, and do what we can in this manner to defeat it; but as we go for entire freedom in the construction of railroads, those who persist in quixotic schemes, using *their own means* alone have a perfect right to do. A merchant may commit a very foolish act in building a ship, but it would be a still greater folly to attempt any restraint upon his freedom.

If our railroad companies will furnish by individual subscription (not by credits of municipal corporations), *one-half* the cost of their roads, we shall be in no danger of overdoing the business for some time to come at least; neither will securities be offered that are not, as a general rule, entirely sound. Such subscriptions cannot be made up by *rival* lines, nor weak projects. Our people have too much sense to put their *own* means at hazard. If they keep aloof, strangers should do no less.— If such a stock subscription cannot be made up on the line of a proposed road, then the project is premature. These rules meet the case exactly. They are easily understood and applied; and if obedience to them is enforced by capitalists, they may invest in railroad securities with entire safety, and at the same time they will impose a proper restraint upon their excessive construction, and preserve this great interest in a sound and healthy condition.

#### Railway Trains from Boston.

Snow's Railway Guide for July shows that 132 railroad trains leave Boston daily, viz: by Old Colony, 17; Providence, 18; Worcester 25; Fitchburg, 26; Lowell, 15; Boston and Maine 30; and Eastern 11. This, of course, includes all the branches. The same number returns daily, likewise, and makes a heavy aggregate of business.

#### The Chilled Slip Tire.

Mr. L. B. Tyng the proprietor of this valuable improvement has recently returned from Ohio, where he has introduced and now has in operation a large number of his tires. The Ohio and Pennsylvania Railroad have twenty of these in successful use. Mr. Roberts the Superintendent, and Mr. Glass the Master machinist of the road, express entire confidence in their value. The Little Miami, Cleveland and Pittsburgh, Hamilton and Dayton, Mad River, and other roads in Ohio have a large number (between one and two



hundred) of these tires in use, and their officers express the same opinion of their merits. We learn that Mr. Tyng will soon establish a permanent agency for the sale of his tires in New York and Cincinnati, and will offer an article which shall possess all the excellence of iron and evenness of chill which can be secured by the experience of the oldest manufacturers. Mr. Tyng's address is, at present at Lowell Mass.

#### Balancing Locomotive Drivers.

The absorption by "counterbalancing" of the disturbing forces, generated in the locomotive, is an important object with the locomotive builder and operator. The irregularities arising from the unbalanced momentum of the reciprocating parts of the locomotive is a source of very destructive wear, both to the engine and to the road. It manifests itself especially in outside connected engines between the axes of the reciprocating motions;—These motions, if occurring upon a common axis, being partly neutralized in each, and lessened as the axes approach a common line. It has been the want of proper and accurate balancing that has kept the outside connection in disfavor with a large number of railroad men, but as this imperfection is estimated and corrected, the simplest, safest, lightest and most mechanical arrangement will secure its position in the construction of locomotives. There are simple and perfect rules for obtaining the weight and position of counterbalances, and machinists and masters of engine repairs will find their application to form a very interesting problem in the construction of locomotives.

Mr. Daniel Kinnear Clark, in his elaborate and valuable treatise on Railway Machinery, has presented the entire subject of balancing drivers in a brief and intelligible manner, which, for the aid of many of our readers who are interested in this subject, but who may not, perhaps, procure Mr. Clark's work, we will transcribe here.

"*Historical Summary.*—Since 1810, Mr. George Heaton, of Birmingham, has paid great attention to the balancing of machines in motion, with a view both to their stability and their durability. In 1838 he experimented with a model of a railway carriage wheels and axle, and showed that by loading the wheels on one side, to represent full-size wheels with tires  $\frac{1}{8}$  inch unequally thick, instability of various kinds would be developed, when they were rolled along the table. He classed the driving wheels and axles of locomotives, with their revolving appendages, as unbalanced wheels; and proposed to apply counterweights to the wheels, between the spokes, to balance the revolving masses, an idea which was carried out by Mr. McConnell, in 1842, on the Birmingham and Gloucester railway. On the Eastern Counties railway, Mr. E. A. Cowper states, Messrs. Braithwaite and Milner had balanced wheels in the same way, in 1837. About the same time Messrs. Sharp and Roberts, of Manchester, applied balance weights in their driving wheels for the revolving masses, and they were, we believe, the first among English makers who did so.

To meet not only the revolving unbalanced weights, but also the reciprocating masses of the piston and appendages, as well as for other objects, Mr. J. G. Bodmer patented in 1841 the application of two pistons, of the same stroke, to work in each cylinder, operating upon a double

crank on the axle, in opposite directions. Thus the disturbing action of one piston, with its crank and connecting rod, neutralized that of the other, and perfect equilibrium was gained.

It is needless to add that Mr. Bodmer's plan was too complicated for general use. Mr. Heaton simplified the idea by applying duplicate reciprocating masses, of equal weight with the piston and appendages, placed along side the fire-box, and worked by a reverse crank from the axle,—a plan which he patented in 1847. Still too complicated.

Mr. W. Fernihough, in October, 1845, conceived that if a revolving balance weight be applied to the wheel sufficiently heavy to balance not only the crank, but also the connecting rod, piston and appendages, the objects of Mr. Heaton's apparatus would be gained, while the irregularities of vertical pressure on the rail due to the excess of centrifugal force of the balance-weight, would not materially affect the stability of the engine.—This conception was well borne out in practice, as he found that outside cylinder engines so balanced were made "infinitely steadier," and the truth is that centrifugal disturbance vertically, however potent it may affect the motion of carriages and other lighter vehicles, is by far the least important element of instability in locomotives. But, though the means of obtaining the material objects of a complete balance were thus early pointed out by Mr. Fernihough, English engineers generally have not appreciated the importance of extending the balance beyond the revolving parts; and they have endeavored to increase the stability rather by such means as extending the wheel-base, lowering the center of gravity, and coupling taut to the tender.

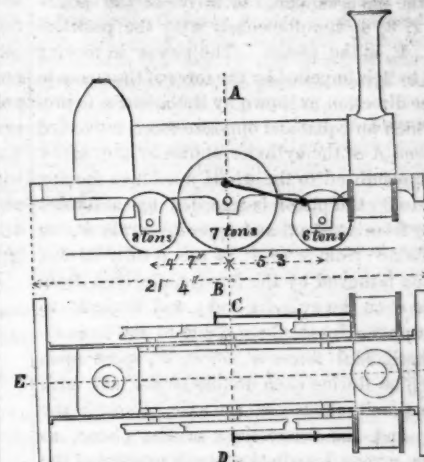
Three years after Fernihough, in 1848, M. Nollau, of the Holstein railway, published his researches on the balancing of locomotives.\* He analysed the causes of instability, and recognized the advantage of balancing, by counter weights applied to the wheels, the alternate action of the piston, as well as the centrifugal force of the revolving parts.

In 1849, M. Le Chatelier published his important investigations on the stability of locomotives,† in which he works out the whole theory of the subject, embracing all that had been done by previous engineers, and supplies rules for practice, confirmed by actual experiment. To this work we are indebted for much of what follows, on the balancing of the engine.

*Nature of the internal disturbing forces caused by the inertia of the mechanism.*—A locomotive in motion may be affected by angular or perpendicular movements horizontally and vertically, and by a longitudinal fore-and-aft movement, coinciding in their oscillations with, and arising from the internal reciprocations of the mechanism. The pendulous movements are of three kinds, and take place round the horizontal and vertical axes of the machine, passing through its center of gravity, or nearly so:—1st, horizontal vibration round the imaginary axis of motion, A B, fig. 1, giving rise to a *sinuous*, or serpentine motion, right and left, which would be visible in plan and end elevation; 2d, vertical vibration on the axis C D, or a *pitching*

or plunging motion, visible in side elevation; 3rd vertical vibration on the axis E F, or a rocking or rolling motion laterally, visible in end elevation;

Fig. 1.



#### LONG BOILER LOCOMOTIVE.

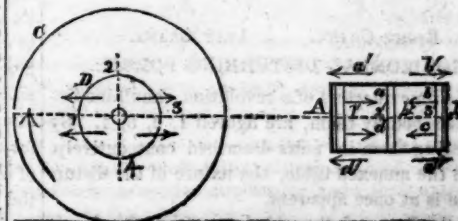
To illustrate the action of internal disturbing forces.

Cylinder, 15 × 22 in. Wheel,  $5\frac{1}{2}$  ft.

there is, 4th, a longitudinal reciprocating, or fore-and-aft movement, rectilinear and parallel to the rails, causing a jolting movement, visible in side elevation and plan. These erratic movements, though originating in the mechanism, are materially affected by the general arrangements of the machine, as to disposition of weight, placing of axles, design of springs, and so forth.

The operation of the reciprocating parts of the Mechanism as disturbing causes is readily explained: they are, during each stroke, moved from a state of rest and accelerated in motion throughout the first half of each stroke, and retarded in motion and finally reduced to a state of rest throughout the last half of the stroke. The steam pressure required to move them is exerted also upon the cylinder-end, and, ultimately upon the body of the machine,—the steam operating as a screw jack between the cylinder cover and piston,—and the whole Machine in consequence aways to one side. During the last half stroke, the momentum acquired by the moving parts is delivered to the crank pin and axle, and thence to the engine causing it to swerve to the opposite side. This process is repeated during the return stroke; and thus, during one revolution of the crank, or one double stroke of the piston, four changes of disturbing force are called into action. The operation of these forces may be illustrated by diagram fig. 2: A B, represents the cylinder

Fig. 2.



#### CYLINDER AND DRIVING WHEEL.

Illustration of internal disturbing forces due to the reciprocating parts.

\* German Railroad Journal of 1848.

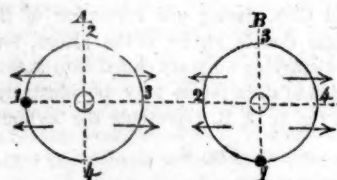
† Studies upon the stability of locomotives in motion. Paris, 1849.

with the piston inside, shown at the two ends and at the middle of the stroke, in the positions 1', 2', 3', 4'; C is the driving wheel with the axle, and the circle D the path of the crank-pin, in which the pin is supposed to arrive at the positions 1, 2, 3, 4, simultaneously with the positions 1', 2', 3', 4', of the piston. The piston in moving from 1' to 2' is impelled by the force of the steam in the same direction, as shown by the arrow *a*, to produce which an equal and opposite force is exerted on the end A of the cylinder, shown by the arrow *a'* and transmitted to the whole machine: moving from 2' to 3', the piston is retarded by a force *b* resulting from an equal and opposite strain *b'*, on the machine; from 3' to 4', in the return stroke, the piston is moved by the force *c*, derived from the force *c'* on the cylinder end; and from 4' to 1', it is opposed by the force *d*, due to the force *d'*.

The horizontal forces *a'*, *b'*, *c'*, *d'*, spent upon the machine during each double stroke, act each of them simultaneously at the axle, through the framing and the connections of the piston, as shown by arrows inscribed on each quarter of the circle D, from which it is plain that while the crank passes from the upper to the lower center of its throw, from 2 to 4, the disturbing forces successively act ahead; and from 4 to 2, they act aback. The circumstances under which the accelerated motion of the piston is acquired, are altered when the engine runs without steam. In this case, the labor of directly moving the piston, discharged when the steam is on by the steam itself in the cylinder, necessarily devolves upon the crank on the driving-axle; that is, the immediate strain this incurred is transferred from the end of the machine, where the cylinder is placed, to the middle. This circumstance, though it does not affect the longitudinal reciprocating movement, increases the lateral oscillation, because the disturbing force has, in the latter case, a greater control over the mass of the machine. This distinction is verified in practice, for engines are known to run steadier with steam on.

The four disturbing forces described for one cylinder, exist likewise for the other; and for the two cylinders there are eight forces brought into operation during one turn of the wheel, which may be further represented as follows:—Let the circles A, B, Fig. 3, be the paths of the two crank pins of the engine, of which A is that of the leading or right-hand crank.

Fig. 3.



RIGHT CRANK. LEFT CRANK.  
HORIZONTAL DISTURBING FORCES.

The four quarters of a revolution simultaneously described by them, are figured 1, 2, 3, 4. By arranging them in pairs described consecutively, as in the annexed table, the nature of the disturbance is at once apparent.

In the first and the third quarters, the forces pull together backward and forward alternately, and give rise to the horizontal reciprocating movement; in the second and 4th quarter, they

are opposed, but at different points of the axle, in the center-lines of the cylinders, and pull the machine alternately to the left and the right for one revolution of the driving wheel, giving rise to the sinuous motion on the rails. The centrifugal force of the revolving parts affects the stability of the machine, only as it gives rise to the horizontal disturbances which have just been pointed out. Its vertical action is insignificant in practice considering that it has to contend, upwardly, with the whole weight of the machine, and without any sensible advantage, seeing that the center of gravity is commonly so nearly over the driving axle; and downwardly, it is met and balanced by the rigidity of the rails.

Table showing the horizontal disturbance of a locomotive in motion, due to the inertia of the machinery.

		Direction of the disturbing forces, that of the progressive motion of the engine being R. or Right, during the successive parts of a revolution.			
		1st Quarter.	2nd Quarter.	3rd Quarter.	4th Quarter.
Crank A.	Left.	Right.	Right.	Left.	
Crank B.	L.	L.	R.	R.	
A. & B. Combined.	L. L.	L. R.	R. R.	R. L.	
		Direct back-ward impulse	Horizontal oscillation	Direct forward impulse	Horizontal oscillation
Nature of the disturbance		impulse to the left	swaying of the engine head forward	impulse to the right	swaying of the engine head backward

*Disturbances caused by the action of the steam on the pistons.*—When the cylinder is horizontal, the steam pressure on either end of the cylinder would be transmitted through the piston to the axle in a direction at right angles to the guides of the axle box, and would be fairly and fully received by these guides, if the connecting rods were so long, as not, at any part of the stroke, to form any sensible angle with the center line of the cylinder. An indefinitely long rod is of course impracticable, and as the pressure of the steam is conveyed through the connecting rod, and may be conceived to act in its center line, the obliquity of the rod, or the angle which it forms with the center-line of the cylinder, everywhere but at the end of the stroke, operates to produce irregularities by the upward strain which it throws upon the cross head, which it is the function of the guide bars to receive as the angularity varies; this irregular pressure varies also, from being nothing at the end of the stroke, to the maximum at half stroke, when the angle of the rod is also greater, and when the pressure is received upon the middle of the guide bar. The tendency of this variable pressure, which is constantly exerted on the upper guide bar, when the engine is going ahead, is to lift the machine off its leading (or truck) springs at half stroke, and to ease it down at the dead points. The alternate heaving and sinking so caused, gives rise to the pitching of the machine; and further, as the variations of upward pressure are not simultaneous for the two cylinders, inasmuch as the half stroke of one cylinder is arrived at simultaneously with the dead point of the other, the heaving of the engine must take place alternately on the two sides, and will cause a rocking or lateral rolling motion on the springs. Pitching and rocking are at least the tendencies of the oblique action of the

connecting rod; and they become more sensible, the shorter the rod and the more susceptible the springs.

If, instead of being horizontal, the cylinders be placed vertically over the driving axle it is clear that the alternate thrust and pull on the axle caused directly by the steam pressure, would give rise to some vertical play on the springs; this would work alternately on the two sides of the machine, and would create the rocking motion in all its simplicity, as has actually been found in practice with the earlier engines with upright cylinders; and, further, if the driving axle be placed either before or behind the centre of gravity of the machine, the vertical action of the strain would superinduce a pitching of the engines which in conjunction with the rocking, produces an *elbowing* or *shouldering* motion.

The compound motion takes place, in a modified degree, in all inclined cylinder locomotives. The incline of the cylinder, in fact, aggravates the irregularities due to the angle of the connecting rod, and becomes more formidable in its effects, not only by increasing the incline, but also by increasing the pressure on the piston with the same angle of cylinder. These disturbances are quite obvious in outside cylinder engines working under full pressure, when the angle of the cylinder amounts to 1 in 10.

There is another source of unsteadiness in the unequal periods of admission which attend the use of certain arrangements of valve-gear, by which a greater quantity of steam is admitted to the cylinder, and a greater mean pressure is reached during the front stroke of the piston than during the back stroke. As the two front strokes for the two cylinders occur consecutively, and in due rotation with the two back strokes, it follows that the machine cannot be uniformly impelled and that while the mean speed must be that due to the average mean pressure on both sides of the piston, the machine will advance and recede during each turn of the driving-wheel, alternately straining and relaxing the connection with the tender; and that, in short, a longitudinal reciprocating movement results, combining with and complicating the movements already described as due to the inertia of the mechanism.

There are, then, three principle internal disturbing causes which affect the stability of the locomotive. 1st, The inertia of the reciprocating masses of machinery which tend to produce a lateral *sinuous* movement, and a longitudinal *reciprocating* movement. 2d, The oblique action of the steam through the connecting rod, and in inclined cylinders, which tends to produce vertical *pitching* and *rolling* movements. 3d, The unequal propelling action of the steam when unequally admitted to the two ends of the cylinder, inducing a longitudinal reciprocating movement, of the same kind as that caused by the inertia of the mechanism.

The unbalanced inertia of the valve-gear has not required notice as its influence on the stability of the machine is insignificant."

To be continued.

J. W. Brooks Esqr. of Detroit, Supt. of the Michigan Central Railroad, and President of the Military tract railroad has been elected President also of the Burlington and Missouri River Railroad.



[From the Hamilton Spectator.]  
Great Western Railway.

HAMILTON, June 13, 1853.

SIR: The unprovoked attack made upon me by some of the directors of the Great Western railroad company, at the late annual meeting of shareholders, and the statements contained in the report of the directors and chief engineer, make it imperative to lay before the public the facts connected with my resignation as chief engineer of that company, in November last, and such other matters bearing upon the same, and the statements made in the report, as will, I trust, not only justify me with my friends, but show the report to be malicious and untrue, and furnish the cause of such an extraordinary proceeding. If in the course of the discussion the private affairs of the company are brought before the public, and men occupying high positions before the community are exposed, I can only say that it was through no seeking of mine own. A "plain unvarnished tale" shall be told, as briefly as the subject will warrant.

As stated in the director's report, Mr. Stuart was the chief engineer of the road until September, 1851, at which time, in consequence of his being required so much in Washington and elsewhere, in the discharge of his official duties, the directors gave me the appointment. Up to that time, the work had been carried on according to his plans with few slight exceptions. Immediately after my appointment such alterations were made in the manner of building the road, and in the mechanical plans as the experience already obtained satisfied me was necessary to make the road first class, and such an one as its friends earnestly desired it to be. The nature of these alterations were stated in my report to the board of May 10th, and Sept. 30th, 1852, and were as follows:

1st.—In substituting arch culverts, laid in cement, for box culverts laid dry under all the heavy embankments.

2nd.—In substituting heavy walls laid in mortar and cement for highway bridges, abutments, and farm passages, instead of light walls laid dry according to the original plan.

3rd.—In substituting stone culverts laid in cement, from Copetown to Woodstock instead of wooden ones.

4th.—In making the bridges on the whole line of a different character from those contemplated by the original plans,—which are now in the office.

5th.—In altering the plans of docking at Hamilton and Windsor, making them as permanent as wooden structures can be, instead of the temporary character of the plans on file.

6th.—In substituting arch culverts and embankments at the Twelve Mile Creek, Dundas Creek, Fairchild's Creek, and Woodhull's Creek, instead of temporary trestle bridges.

My aim and object was to make the road as permanent as possible at the commencement, and in this the directors sustained me, thinking with myself that it was better to make the expenditure required, at once, than to have an unsafe road that would require rebuilding within a few years. This policy had been a matter of frequent conversation between myself and the directors, so much in fact that they directed me to build all of the important structures for a double track, as it was thought it could be done at less expense now, than after the road was completed, and the improvement would therefore be good policy.

In my annual report of June, 1852, these alterations were referred to when speaking of the work and without furnishing any estimate of the amount of the extra cost of these items it was stated that, "After making allowances for the increase of cost in consequence of building bridges and culverts for a double track—by the substitution of culverts and embankments in many cases for temporary trestle work, and stone instead of brick work, etc., the cost of the road will not exceed the original estimate." This last paragraph was written under the following circumstances. The report was originally completed without it, and the manuscript

had been given to Mr. Harris, the president of the road for his perusal, and for him to suggest any alteration that he might think advisable after having done so. On the next day when I met him he observed that the shareholders in England would expect something said about the cost of the work. I remarked to him that the less that was said about that, the better, unless in a general way, and expressed an opinion that it would at that time be better to say nothing about it. He however urged me to say something in relation to it, after which I wrote the last paragraph and carried it to him for examination. He read it, and said it would do very well, and it was accordingly incorporated into the report. I must confess that after this conversation, and what had taken place, it was with much astonishment that I read the report of a speech made by Mr. Harris, in London, some weeks afterwards, at a public meeting of shareholders, wherein he stated on the strength of my report that the cost of the road including all the alterations, would not exceed the original estimate of Mr. Stuart. I do not believe that there was an active member of the board, and by this I mean any director who interested himself in the work, and noticed the plans and manner of constructing the road, that was at all surprised when my report, of the 30th Sept., 1852, appeared, increasing the cost of the work 286,000 pounds currency, although it was seized hold of by the American directors as a pretext to carry on their long cherished and heretofore defeated object, *i. e.* to have me removed from the road and get a more pliant person in my place. It is not an unusual thing, or one that should create so much surprise, that a railway 240 miles in length, should exceed the preliminary estimate, no matter with how much care they may have been made, but in this instance, and accompanying my report, the cause of the increase was fully stated and shown to be for works not contemplated in the original estimate, and for which the engineer could not properly be held responsible—to wit: making mechanical structures for double track; buildings and machinery for manufacturing cars in Hamilton; increased costs by re-letting section One in the city of Hamilton; slides on mountain near Dundas; increase in cost of grading on Western Division, caused by unusual high water in Lake St. Clair; excavating the hill in rear of workshops in Hamilton, never before contemplated; grading Stuart and Queen streets; making excavation through Hamilton and Burlington Heights for double track; allowance beyond contract price to Farwell and Co., for quick sand and rock; alteration in the character of culverts and bridges; additional embankment on Sec. 11 to fill subterranean lake; pile road for 14 miles west of Chatham, in consequence of continuous high water; protection piling at Copetown, machinery for work shops; alterations in plans of docks at Hamilton and Windsor; substituting culverts and embankments, for trestle bridges at Twelve mile creek, Dundas creek, Fairchild's creek, and Woodhull's creek; substituting stone culverts for wooden ones from Copetown to Woodstock.

Many of these additional items were well known to the President, and by the directors, at the time of the writing of the annual report; and the passage quoted above, was written to let the shareholders know that an additional amount would be required beyond the original estimated cost to meet them. What the object was in torturing this sentence to read entirely different from its intention, and what was known to be its meaning, I leave for others to decide—contenting myself with stating the facts, and taking this opportunity of again saying, that in consequence of reductions made in the cost of the line, by alterations on the Central Division, which were enough to counter-balance other items estimated too low, the road could have been built at the original estimates of Mr. Stuart, in the plans and in the manner contemplated by him, after providing for works not originally intended.

As stated before, it is not an unusual thing for railways and public works to exceed their original cost, and there is hardly a person in Canada who

has had occasion to build that has not learned this fact in a greater or less degree, no matter with what pains he made his original estimates. There are contingencies in construction that the most skillful Engineer cannot foresee, but when the works are built for a double track instead of single, and such other important alterations are made as in the case of the Great Western, how idle it is to attempt to cast blame on the Engineer.

There are perhaps no persons in America who know that the cost of all public works exceeds the estimates better than the American Directors.—The Michigan Central, in which road they are all Directors, and among them the Engineer and Superintendent, has cost nearly double the amount first estimated by Mr. Brooks—yet it was never urged upon him as a ground for his dismissal.—The Hudson River railroad has already cost more than double the original estimate, and is yet unfinished. The Directors of that road did not attempt to brand the Engineer for it, to shield themselves, and they now both rank at the head of their profession, and have the confidence of the public in an eminent degree. I refer to Messrs. Young and Jervis. The Mammoth Erie railroad, the largest road at present constructed in America, has cost four times the original estimate. The Northern (Ogdensburg) road has cost double the original estimate, and the same Engineer remains upon it. It would be an easy task to fill pages with similar cases, but the thing is too well known to require comment.

The report goes on to say: "This state of matters necessarily led the Directors to make the most careful investigations into the Engineering department, which resulted in the resignation of Mr. Benedict," &c. This sentence is intended to convey the impression that some discovery was made during a careful investigation, which forced me to resign—than which nothing can be more untrue. I challenge and court investigation, and have always done so; and it is only at the request of the Directors themselves that this communication has been kept to this time, to my injury. If the most minute and searching enquiry can discover aught against my character, either professionally or otherwise, I will never attempt to defend myself again, and the Directors of the Great Western railway may freely make me shoulder their acts of omission and commission as well as misrepresentation. It is well known to every person connected with the Great Western railway that, from the earliest commencement of the work, and throughout the whole progress of the negotiation with the Americans in relation to stock, up to the final consummation of the subscription at Albany in 1852, there has been a feeling of bitterness and hostility towards myself on their part, that has shown itself on every occasion, and which is perfectly unaccountable. Attacks have been made upon me in meetings held in the United States, and to such an extent that I declined to remain any longer upon the road, unless with the assured support of the Canadian Directors, knowing full well that no efforts would be spared, no means left untried to effect my removal. This support was promised by the President of the road, if I would consent to remain; and he assured me that the Board had the most entire confidence in my integrity, skill and ability. In fact, this sentiment was endorsed in their annual report of 1852, by the whole of the Directors. Shortly after the appearance of my report and detailed estimates, in September last, the agents of the Company were engaged in negotiating a large amount of stock and bonds in London, which fact was well known to the American Directors, and was made the lever for removing me from the road. On the 3rd of November, (Wednesday) a delegation of seven of these high-minded gentlemen made their appearance in Hamilton, and worked until Saturday to accomplish my dismissal, on the grounds of the largely increased estimates, want of confidence, and a series of charges that I was not permitted to see or answer. On Saturday afternoon a resolution for my dismissal was offered by one of them,



accompanied by a threat that unless it carried they would send an agent to England to make such representations to the Bond and Shareholders, that true or false would effectually put a stop to raising any more funds in that quarter. This resolution was lost, notwithstanding the threat, only one of the Canadian Directors voting for it, which does not look very much as if the "careful investigation into the Engineering department led to my resignation." On the following Monday, Mr. Buchanan called upon me and stated the difficult position the Directors were in; and added that if the Americans carried out their threat, it would inevitably retard the progress of the road a year or more, and cause great losses to its friends who had embarked largely on the strength of the Americans having taken an interest in it; and that notwithstanding the resolution had been voted down on Saturday, my friends in the Board thought it best, under the circumstances, that I should tender my resignation. After a conversation with Messrs. Juson and McLaren, who repeated and corroborated the statement of Mr. Buchanan, and upon consultation with some friends, my resignation was tendered, with the avowed understanding that it was done to relieve the Canadian Directors of the responsibility that was sought to be put upon them by the American Delegates.—So far as relates to any charges made against me by the Americans, I have only to say that I tried faithfully to get them to make them specific, and give me an opportunity of answering, which was, and ever has been, denied me, the Americans being satisfied of success as soon as they found the fears of the Board were aroused in relation to their stock and bonds; and I do not hesitate to say, without fear of contradiction, that if the negotiation then in progress in London had been effected, the Americans never could have succeeded in their object. In order to show conclusively that the feeling of the Board was with me, it is only necessary to state that at the first meeting of the Board afterward, they appointed me to take charge of the Sarnia and the Hamilton and Toronto lines, on the former of which I have been drawing a salary as Chief Engineer from the Western Company until the first day of June, or within a few days of the Directors' report; and in the latter I was unanimously appointed Chief Engineer, on its organization, by almost the same Board of Directors. It was a most singular way of expressing dissatisfaction, if any existed. But every circumstance goes to show that such was not the case, and that the Directors feared to take a bold stand in my favor, preferring the easier mode of prevailing upon me to resign, by representing the vast injury the Americans could do the road in England. My mistake was in not allowing myself to be dismissed, instead of sealing my lips by a resignation. In the former case I could at least have had the satisfaction of exposing the transactions that have taken place, and that are daily taking place on the Great Western railroad, whereby the cost has been rolled up, according to the estimates of the Chief Engineer, some £336,000 above my liberal and careful estimates of September, which was so much complained of in the Directors' report, and which large and increased expenditure would, in the language of report, "sound startling to those acquainted with European railways," on account of its being so much less than they are accustomed to pay. This increase is no doubt, a large portion of it, caused by the very "amicable arrangements" made with the contractors to avoid vexatious litigation, as mentioned in the report of the Engineer, whereby eight dollars per yard is paid for all classes of masonry, instead of three and six dollars, and whereby a very largely increased price is paid for grading on almost every section where a contractor has expressed any dissatisfaction. Such a result is not singular when an engineer has nothing to govern or check him in his expenditures.

If the Chief Engineer had occupied less of his reports with strictures upon his predecessor, and given a little more information to the Stockholders, they would then have been able to judge how much truth there is in that portion which states

"that up to the close of the year 1853, but very small and detached portions of the grading in any part of the line had been completed." This information will be news for many of them, and accordingly the work at the present time can hardly have been commenced, as in another part of the report he says "that the late period in 1852 in which I assumed the duties of Chief Engineer, left but little time hitherto, except during those seasons of the year unfavorable to press forward the work, &c." According to the statement of the Accountant, up to the present time, there has been expended for grading, masonry, and bridging and superstructure £1,002,270, on these "very small and detached portions of the work." The whole estimated cost of these items, according to Mr. Clark's report, is £1,606,481, leaving a balance to be expended of £604,211, to complete this wonderful balance of work, that he would carry the idea is yet to be done. The "glowing anticipations of the late Chief Engineer have not been realized," it is true, in the completion of the work at the promised time, for the reason that he encountered the same "difficult obstacles, inveterate and extended in their character," that the present Chief Engineer has to deal with.—There is not a doubt, however, that an examination of the estimate books would show a wonderful falling off in the amount of work done per month since the resignation of the late Chief Engineer—a fact that it would have been as well to have mentioned. The light grading on the Eastern Division, that was to have been done by the 1st October, according to the last annual report of the late Chief Engineer, and which is a matter of so much regret to Mr. Clark, would have been done in time, had it been authorized by the Directors, as likewise the 100 miles on the Western Division. It would have been well, perhaps, for the Chief Engineer to have informed the Stockholders, that although he objected, while Commissioner, to the classification and masonry prices paid by Mr. Benedict, one of his first acts, after his appointment as Chief Engineer, was to increase largely the prices of both; so much so that on one contract it left £19,900 due to the contractor on account of advanced prices, plainly showing that he made use of his office to harass and impede the works, or was in conclusion in some way with the contractors. It might have been well, likewise, to have informed the Stockholders how much it cost the company to get rid of the classification clause, instead of occupying space in the report, by reflecting upon the mismanagement of the New York and Erie Railroad company. Perhaps, likewise, the Stockholders would have preferred to have been told the reasons for changing the stone cattle guards on the Eastern Division (where stone is in abundance) to wooden ones that will decay in a few years. This piece of information would be particularly acceptable in England. Perhaps it would have been of more interest to the Stockholders than the half column, more or less, devoted to annihilating the late Chief Engineer, to have given some information as to the change of the line at Windsor against the decided report of the Government Engineer, and the cost of the same; to have given some detail of the amount of yards moved and to be moved on the road; to have given some reason for changing the grade at Cope-town to 56 feet per mile without the consent of government; to have given some reason for changing the grade through the city of Hamilton; to have given some reason for trailing down the abutment at the Desjardines Canal, and sundry other matters that are of particular interest to them; but probably these matters are reserved for the next annual report.

In the very full account of the proceedings published in the *Canadian* of the 11th inst., in reply to a question of Dr. Hamilton, Mr. Forbes is made to say, that they (the American Directors) had never sanctioned anything with regard to Mr. Benedict except his resignation. and that, he thought the Board dealt very leniently with him, that there were other things of greater importance than the charge of exceeding his estimates.

He (Mr. B.) states in that report that one hundred miles to the west were in such a state of forwardness that they would be ready to open that length of road by the 8th November, &c.—I have carefully read over the report, and do not find such a promise; but on the contrary it says, "The extreme and long continued high water in Lake St. Clair and its tributaries, during the present season, has retarded our operations on the Western Division materially; but I hope to be able to complete one hundred miles of the road from Detroit River east by the 1st day of January, 1853." I did hope to do so, and it rested with the Directors entirely whether it should be done, as likewise the grading from Hamilton to the Twenty Mile Creek. In a report made to them 17th May, 1852, I called their attention to it in this way: "As it is apparently the intention to complete and operate that portion of the Railroad from Detroit River east one hundred miles, and from Hamilton to the Twenty Mile Creek the ensuing winter, I would request the Board to pass a resolution authorising me to notify the Contractors to that effect, as, by their contracts, they have from fifteen to twenty-four months from the commencement of the work to complete the same, which, if taken advantage of, will retard the opening of the line until the spring of 1854. The new contracts that have been made on the Western Division specify that the Grading shall be completed by the 1st day of November, 1852; but as they comprise only a small portion of the line, the benefit to be derived would be inconsiderable." This reports was not acted upon, and the resolution was delayed from day to day until it was too late by any effort to complete the work. Mr. Forbes and Mr. Clarke, who put so much stress upon these points, would have done well had they made some enquiry, before making quite so large a mountain of them. The Directors did not choose to take the responsibility of the increased cost to finish the work within a shorter time than that specified in the contracts; under the circumstances, therefore, having brought it to their notice, and urged the necessity of it upon them, it was not my province to proceed with the work in any other manner than that specified in the contract.

Mr. Forbes also stated, that according to the rate of progress the work could not be completed in three years. Sickness, scarcity of men, and the high water of the Lake, retarded our operations very much, but successful efforts were making to increase the force, and it would be just as competent to say that because a section had not been commenced it never could be completed, as to say that because the sickness, &c., had thinned the force it could not be increased sufficient to do the work in time. Mr. Forbes said that they (the American Directors) never sanctioned anything done by me. I know their bitter hostility too well to expect them to do such a thing; but unfortunately for Mr. Forbes, Mr. Corning, and I think Mr. Brooks, have done me the justice to say that the Great Western would be one of the best built and most substantial roads in America, which I think is endorsement enough. But even had they not, I have it from the Chief Engineer who is so highly eulogised by them.

Had I fallen into their views, and allowed the Great Western Co. to be chiselled out of 30, or 40,000 pounds at Detroit without raising my voice against it, to accommodate the Michigan Central Road—in which they are all Directors—there would have been no hue or cry about increased estimates, and they would as cheerfully join in a report in my favor now as in 1852.

I find that the subject will carry me too far if an attempt is made to do one-half of it justice; but I trust enough has been said to give the public a little insight into the way things are managed. Professional engagements will not allow me time, in this communication, to say more; but on my return, the Great Western Railway, as connected with its management both in Canada and England, may possibly receive attention. Another communication of the length of this would open the



eyes of the Shareholders, who meet yearly to hear the annual reports, and vote the thanks of the meeting to the President and Directors for the manner in which they have conducted the operations of the company. I have the facts, and surely the people who have taken advantage of my forbearance, cannot expect me always to suffer for their benefit. Apologising for occupying so much of your valuable space.

I remain, dear Sir,

Yours truly,

R. G. BENEDICT.

#### Delivery of Locomotives in the Western Market.

The eastern builders of locomotives have always from position and reputation, commanded the market for locomotives in the western states. The east being the source of capital for the new works in construction at the west, secures the contracts also for equipment of those works, and as it possesses the elements of industrial skill, and a cheap supply of labor, it is enabled to complete such contracts with profit and reputation. It is the higher price of labor in the west and the influence of a greater consequent attention to agriculture and trade, and more than this, the habit of relying upon other sources for supply, that has retarded the organization of establishments there, devoted to the manufacture of locomotives.

As to materials, the eastern builders have no advantages either in their cheapness or abundance, except that being in or near at hand to the importing towns, they can cheapen their manufactures by yielding to the temptation offered in the use of the cheaper kinds of imported iron. English boiler iron at  $3\frac{1}{2}$  cents, and bar iron at  $2\frac{3}{8}$  cents, (which were the prices paid by some parties during the last season) cannot be expected to afford the same permanence and durability as the iron worked from Juniata or Missouri blooms. The better kinds of English iron, as the Lowmoor, Bowling or Kirkstall marks, are not generally employed in the construction of locomotives in this country. Imported stock is preferred for its cheapness rather than for its excellence. The cost of inland carriage aided by the abundance of materials in the iron regions of the west, removes this temptation there. During a visit, last fall, at Pittsburg we passed through the works of Everson, Preston and Co., of the Pennsylvania forge, at that place. We found that all parts of the forged work of a locomotive could be as cheaply supplied there as in Boston. Best double cranks forged from Juniata blooms could be made for 15 cents per pound. Straight axles at five cents, hammered frames at  $5\frac{1}{2}$  cents, and rolled do at  $4\frac{1}{2}$  cents. These, of course, are far below present prices, but were as low as could then be offered in Boston. Castings, composition, copper, lumber and all of the other important materials of engines were to be had at proportionally favorable prices. Coal, of course, was much less, being then about \$1.12 per 2,000 lbs. Labor was then much the same as in Boston, at which place, labor is generally higher than in Paterson, Philadelphia and Baltimore. The expenses of living, for mechanics and others, was in the main, much lower than at the east, except in the single item of rent, which was quite as high.

We have made the above remarks to show in part, the relative advantages of the east and west as locations for engine factories. To show another fact of great importance, and greatly in favor of the western establishment, is the expense of the

delivery of engines upon the western roads. As many of the western roads are of a different gauge from the lines which run from the east, the shipment of locomotives is often attended with much expense. Again, most of the locomotives forwarded have to be shipped on Lake Erie, and as the majority of engines are generally contracted for in the fall, to be delivered at the earliest opening of lake navigation in the spring, they are necessarily shipped under the heaviest charges of freights and insurance. Lake captains intend to charge a round sum for risking their necks in April, which with October is a dangerous month for their navigation. Insurance upon locomotives in Buffalo is usually had in April for two per cent, in May at  $1\frac{1}{2}$  per cent, and in June at 1 per cent. Freight are graduated something in the same ratio. To show what the expense of delivery may amount to in this case, we will give the expense of delivering two locomotives, from Boston, at Cleveland, during April 1852. The engines were for the Ohio and Pennsylvania road which is of a gauge of 4 feet ten inches. The engines were placed upon trucks for transport over the Boston and Buffalo line, while the tenders, driving wheels, truck frames, smoke pipes, etc., were loaded onto three eight wheel cars. The load transported on the three cars amounted to about 30 tons.

Railroad charges from Boston to Buffalo.....	\$651 21
Railroad Dockage at Buffalo, \$10 each.....	20 00
Paid for changing driving wheels \$5 50 each.....	11 00
Putting engines and tenders on ship.....	34 00
Forwarder's commission.....	50 00
Insurance—\$1,5400 at 2 per cent.....	308 00
Lake freight to Cleveland.....	225 00

Total for the two engines.....\$1299 21

The railroad charges were much beyond the usual sum of 20 cents per engine per mile, which is the price charged for transportation on most roads. Of the whole sum, however, \$48 were paid for moving the engines through the city of Troy, and \$30 were demanded by the Boston and Western road for allowing their cars to run through.

Now, as we have reason to believe that materials are not higher in the west than at the east, and as the labor upon engines is usually not far from \$2,000 each, the expense of transportation from Boston to Cleveland, is equal to an advance of  $32\frac{1}{2}$  per cent. on the price of the labor necessary to construct the engine. That is, the Ohio and Pennsylvania road could have as well afforded to give out a contract for their engines in Pittsburgh at \$8350 each, as in Boston at \$7700, and who does not believe that with such encouragement, a western shop could compete with eastern establishments on work for western roads.

Since that time, efforts have been made to establish a locomotive manufactory at Pittsburg, but we believe that no steps have yet been taken towards erecting the establishment. However, there must be felt a necessity, sooner or later, for a manufactory at that point. The capital can be readily procured there and at many other of the important cities in the west. The skill can be carried there, and with both capital and skill there should be no obstacle to success. The present establishments at the east will sustain themselves under the present demand for engines, but the new shops should be located in the west. When powerful concerns are once started there, which

can supply a first-class, acceptable style of work, they can make easier terms with roads in their own vicinity, than could be afforded at the east. The convenience to the roads in that section would be great in the priority which they could obtain for their orders over what would attend their reception here; they would enjoy the advantage of the opportunity for making alterations when necessary, and of obtaining duplicate parts of engines for repairs and renewals. But greater than all else, an engine could be completed and delivered at any time in six weeks from the reception of the order, and with a saving of from \$400 to \$600 in the expense of its delivery, as compared with a machine ordered at the east.

A shop of sufficient capacity to build 50 locomotives per annum would require an outlay of from \$10,000 to \$12,000 for land and buildings; \$35,000 to \$40,000 for tools, and \$100,000 of working capital. Under proper management \$150,000 would organize and start such a concern in Pittsburgh, Cincinnati or St. Louis.

To show the market which such an establishment would create for the metal producers in its vicinity, we will give the following estimate of what stock it would work up in one year, at the above mentioned rate of production. (50 engines per year.)

600 tons of Castings at \$60.....	\$36,000
20 " Composition do., at \$600.....	12,000
325 " Bar Iron and Forged Shapes.....	48,750
25 " Steel Springs.....	5,625
75 " Copper Tubes, Sheets, &c.....	45,000
140 " Boiler Iron.....	16,500
62 " Tank Iron.....	5,000
	\$168,875
Add miscellaneous charges for stock.....	15,000
Expenses of carrying on establishment.....	15,000
" of delivering engines.....	5,000
Labor, \$8,500 per month.....	102,000

Expense of building 50 locomotives.....\$305,875  
Receipts from 50 locomotives at \$8,000... 400,000

Leaving an annual profit of.....\$94,125

#### Marietta and Cincinnati Railroad.

ALL UNDER CONTRACT.

The Directors of the Marietta and Cincinnati Railroad Company, at their meeting last Saturday placed under contract the three Divisions of the road for which proposals were received up to the 15th inst. at the Engineer's office at Wheeling, Marietta and Cincinnati. These lettings together with those heretofore made, place the whole line of the road from Wheeling to Millford (near Cincinnati) in the hands of Contractors, and its completion is confidently looked for in about one year from this time.

We learn that there was a very spirited competition for the contracts, and that the bidding was very close. As an example, we understand that there was not a difference of fifty dollars between three of the bids on one Division of nineteen miles. On the seventh Division there were six bids, which did not vary five per cent. in the aggregate. The work was all let at prices below the estimate of the Chief Engineer. The successful bidders were Messrs. DeGraff, Brantnall & Co., for the West division of nineteen sections between Millford and Blanchester. The work is to be completed in one year. To Messrs. Bradley, Whitmore & Co., of Vermont, was awarded the eighth Division of thirty-two sections, being the work nearest the

city of Wheeling. This Division to be completed the first of September, 1854. The seventh Division of forty sections, being the residue of the road between Wheeling and Maletta, was awarded to Messrs. DeGraff, Brintnall & Co., to be completed the 1st of Sept. next.

## American Railroad Journal.

Saturday, July 30, 1853.

Hon. H. C. Seymour.

We grieve to announce the death of this gentleman, which took place at his late residence at Piermont, in this state, on the 23rd inst.

Few men of his age were better or more favorably known to the public. He was a man of much more than ordinary ability, and uniting to this an ardent temperament and untiring industry, was always constantly occupied and uniformly successful. He was early and for many years employed as an Engineer on the Erie railroad, and it was mainly owing to his efforts that the present gauge of that road (6 feet) was adopted. He perhaps, as Superintendent of the road, was more instrumental in saving it from being utterly abandoned, than any other man, and in this manner probably contributed more than any other person toward the final accomplishment of that great work. Upon leaving this road he was chosen Chief Engineer of the State of New York. At the expiration of his duties in this office, he embarked largely in the construction of railroads, and had on his hands, in connection with other parties, at the time of his decease, contracts to the amount of over \$30,000,000. It was the immense labor that these contracts imposed upon a person naturally solicitous to do all that he could himself, and to do everything well, that brought him prematurely to his grave.

In all the relations of life he was without blemish. His intellectual qualities, which were of a high order, his genial nature and generous disposition, at once secured for him the respect and affection of all. His death is a public loss. To the immediate circle of his friends, it is one that can never be supplied.

### Erie Railroad.

Mr. Nelson Robinson has been chosen Treasurer of this Company in place of Mr. Townsend resigned. Mr. Robinson is regarded as the leading "operator" in the stock of the Company, of which he has the reputation of holding a very large amount. He would seem to have every motive in having the affairs of the company judiciously managed. He is of course a *Bull* in the stock, and his election will undoubtedly be a signal for a fresh attack upon it by the *Bears*. Mr. Robinson is looked upon as one of the shrewdest men in Wall street, but we cannot help thinking it would have been a wiser move to have filled his place with a person, all of whose interests and responsibilities would have been summed up in the word, *Treasurer*. We know that the company have suffered from having parties in its management whose interests have been adverse to those of the stockholders. Mr. Robinson's interests and those of the company are identical, but he may be in a position where he may think it for his interest to pursue a course really adverse to that of the company. On the other hand it may turn out that he is just the man to cleanse the Augean stable. The result must show.

## Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equip't.	Gross Earnings in 1852.	Net Earnings in 1852.	Dividend, 1852.	Price of Shares.
Atlantic and St. Lawrence... Maine.	150	1,417,587	3,000,000	4,649,392	200,233	.....	none	95
Androscoggin and Kennebec.. "	55	809,878	1,016,500	2,064,458	140,561	80,053	none	30
Kennebec and Portland.... "	72	876,741	800,000	2,180,000	133,338	.....	none	40
Port., Saco and Portsmouth.. "	51	1,355,500	123,884	1,459,384	208,669	.....	6	100
York and Cumberland,..... "	20	227,981	291,200	In progres	15,694	.....	none	40
Boston, Concord and Montreal. N. H.	93	1,649,278	622,200	2,540,217	150,538	79,659	none	41 1/2
Concord .....	35	1,485,000	none.	1,485,000	305,805	141,836	8	108 1/2
Cheshire .....	54	2,078,625	720,900	3,002,094	287,768	55,266	5	.....
Northern .....	82	3,016,634	.....	.....	328,782	163,075	5	58
Manchester and Lawrence.... "	24	717,543	.....	.....	.....	.....	6 1/2	96 1/2
Nashua and Lowell..... "	15	600,000	none.	661,214	132,545	51,513	8	109
Portsmouth and Concord.... "	47	.....	.....	1,400,000	.....	.....	none	.....
Sullivan..... "	26	.....	.....	673,500	.....	.....	none	9
Connecticut and Passumpsic.. Vt.	61	1,097,600	550,000	1,745,516	.....	.....	none	44
Rutland .....	120	2,486,000	2,429,100	5,577,467	495,397	266,539	none	32 1/2
Vermont Central .....	117	8,500,000	3,500,000	12,000,000	.....	.....	.....	17 1/2
Vermont and Canada..... "	47	1,500,000	.....	1,500,000	Leased to the Vt. C.	.....	cent.	102
Western Vermont..... "	51	392,000	700,000	.....	Recently opened.	.....	none	.....
Vermont Valley .....	24	.....	.....	.....	.....	.....	none	.....
Boston and Lowell..... Mass.	28	1,830,000	.....	1,995,249	388,108	130,881	7 1/2	99
Boston and Maine..... "	83	4,076,974	150,000	4,092,927	659,001	338,215	7	106 1/2
Boston and Providence..... "	53	3,160,390	390,000	3,546,214	469,656	227,434	6	87 1/2
Boston and Worcester..... "	69	4,500,000	425,000	4,845,967	758,819	331,296	7	101 1/2
Cape Cod branch..... "	28	421,295	171,800	633,906	60,743	30,056	2 1/2	40
Connecticut River..... "	52	1,591,100	193,500	1,801,946	229,004	72,028	5	57
Eastern .....	75	2,850,000	500,000	3,120,391	488,793	241,017	7 1/2	93
Fall River..... "	42	1,050,000	none.	1,050,000	229,445	99,589	8	104 1/2
Fitchburg..... "	66	3,540,000	112,305	3,623,073	574,574	232,787	6	99
New Bedford and Taunton... "	20	500,000	none.	520,475	164,230	43,950	7 1/2	117
Norfolk County..... "	26	547,015	819,743	1,245,927	67,251	23,415	none	63
Old Colony .....	45	1,964,070	282,300	2,293,534	322,213	101,510	none	94
Taunton Branch..... "	12	250,000	none.	307,136	137,406	24,399	8	.....
Vermont and Massachusetts.. "	77	2,140,536	1,001,500	3,203,333	218,679	18,648	none	18
Worcester and Nashua..... "	45	1,134,000	171,210	1,321,945	162,109	66,900	4 1/2	59 1/2
Western .....	155	5,150,000	5,319,520	9,953,759	1,339,873	683,194	6 1/2	99
Stonington..... R. I.	50	.....	.....	.....	.....	.....	.....	58 1/2
Providence and Worcester... "	40	1,457,500	300,000	1,731,498	253,690	139,514	6	.....
Canal..... Conn.	45	.....	.....	.....	.....	.....	10	.....
Hartford and New Haven.... "	62	3,000,000	472,000	.....	600,408	332,223	none	126
Housatonic..... "	110	.....	.....	2,500,000	329,041	168,902	none	.....
Hartford, Prov. and Fishkill. "	50	.....	.....	In progres	69,629	.....	none	.....
New London, Wil. and Palmer "	66	558,861	800,000	1,511,111	114,410	.....	.....	.....
New York and New Haven... "	61	3,000,000	1,641,000	4,978,487	806,713	428,173	7	105
Naugatuck .....	62	926,000	440,000	.....	.....	.....	.....	.....
New London and New Haven. "	55	750,500	650,000	1,380,610	Recently opened.	.....	none	45
Norwich and Worcester..... "	54	2,121,110	701,600	2,596,488	267,561	116,965	4 1/2	54 1/2
Buffalo and New York City.. N. Y.	91	900,000	1,550,000	2,550,500	Recently opened.	.....	none	85
Buffalo, Corning and N. York. "	132	.....	.....	In progres	.....	.....	none	65
Buffalo and State Line..... "	69	879,636	872,000	1,921,270	Recently opened.	.....	.....	130
Canandaigua and Niagara F.. "	50	.....	.....	In progres	.....	.....	.....	.....
Canandaigua and Elmira..... "	47	425,509	582,400	987,627	76,760	39,360	none	68
Cayuga and Susquehanna.... "	35	687,000	400,000	1,070,786	74,241	23,496	none	.....
Erie, (New York and Erie).... "	464	9,612,995	24,003,865	31,301,806	3,537,766	1,691,623	7	76 1/2
Hudson River..... "	144	3,740,515	7,046,395	10,527,654	1,063,659	338,783	none	72 1/2
Harlem .....	130	4,725,250	977,463	6,102,935	681,445	324,494	5	61 1/2
Long Island..... "	95	1,875,148	516,246	2,446,391	205,068	44,070	none	35 1/2
New York Central .....	504	22,858,600	2,111,824	.....	.....	.....	.....	119 1/2
Ogdensburgh (Northern).... "	118	1,578,311	2,780,760	4,933,029	480,187	195,847	none	41
Oswego and Syracuse..... "	35	350,000	201,500	607,803	90,616	43,609	4	70
Plattsburg and Montreal.... "	23	174,042	131,000	349,775	Recently opened.	.....	none	.....
Rensselaer and Saratoga.... "	25	610,000	25,000	774,495	213,078	96,737	.....	.....
Rutland and Washington.... "	60	850,000	400,000	1,250,000	Recently opened.	.....	.....	.....
Saratoga and Washington.... "	41	899,800	940,000	1,832,945	173,545	135,017	none	30
Troy and Rutland..... "	32	237,690	100,000	329,577	Recently opened.	.....	.....	33
Troy and Boston..... "	39	430,936	700,000	1,043,357	Recently opened.	.....	none	.....
Watertown and Rome..... "	96	1,011,940	650,000	1,693,711	225,152	116,706	8	109
Camden and Amboy..... N. J.	65	1,500,000	.....	4,327,492	1,388,385	478,413	10	150
Morris and Essex..... "	45	1,022,420	128,000	1,220,325	149,941	79,252	4	.....
New Jersey..... "	31	2,197,840	476,000	3,245,720	603,942	316,259	10	148
New Jersey Central..... "	63	986,106	1,500,000	2,379,880	260,899	124,740	3 1/2	.....
Cumberland Valley..... Penn.	56	1,184,500	13,000	1,265,143	118,617	76,890	5	.....
Erie and North East..... "	20	600,000	.....	750,000	Recently opened.	.....	.....	125
Harrisburgh and Lancaster.. "	36	783,950	688,051	1,609,494	200,249	106,932	8	.....
Philadelphia and Reading.... "	95	6,656,332	10,427,800	17,141,987	2,480,626	1,251,987	7	.....
Philad., Wilmington and Balt. "	98	3,850,000	2,403,276	6,818,839	667,785	338,501	5	.....



## Railway Share List,

Compiled from the latest returns—corrected every Wednesday—on a par valuation of \$100.

NAME OF COMPANY.	Miles open.	Capital paid in.	Funded debt.	Tot. cost of road and equipm't.	Gross Earnings in 1852.	Net earnings in 1852.	Dividend, 1852.	Price of shares.
Pennsylvania Central..... Penn.	250	9,768,155	5,000,000	13,600,000	1,943,827	617,625	....	99½
Philadelphia and Trenton.... "	30	.....	.....	.....	.....	.....	.....	.....
Pennsylvania Coal Co..... "	47	.....	.....	.....	.....	.....	.....	.....
Baltimore and Ohio..... Md.	381	9,188,300	9,827,128	19,542,307	1,325,563	615,384	7	71½
Washington branch..... "	38	1,650,000	.....	1,650,000	348,622	216,237	8	.....
Baltimore and Susquehanna.. "	57	.....	.....	.....	413,673	152,536	.....	42
Alexandria and Orange..... Va.	65	.....	.....	In prog.	.....	.....	.....	.....
Manassas Gap..... "	27	.....	.....	In prog.	.....	.....	.....	.....
Petersburgh..... "	64	.....	.....	.....	.....	.....	.....	.....
Richmond and Danville..... "	73	1,372,324	200,000	In prog.	.....	.....	.....	.....
Richmond and Petersburg.. "	22	685,000	.....	1,100,000	122,861	74,113	none	.....
Rich., Fred. and Potomac.... "	76	1,000,000	503,006	1,531,238	254,376	113,256	7	105
South Side..... "	62	1,328,722	800,000	In prog.	.....	.....	.....	.....
Virginia Central..... "	107	1,400,100	446,036	In prog.	176,485	74,902	none	.....
Virginia and Tennessee..... "	60	3,000,000	1,500,000	In prog.	.....	.....	none	.....
Winchester and Potomac.... "	32	180,000	120,000	416,532	89,776	.....	12	.....
Wilmington and Raleigh.... N. C.	161	1,338,878	1,184,698	2,965,574	510,038	153,898	6	.....
Charlotte and South Carolina. S. C.	110	.....	.....	.....	.....	.....	.....	.....
Greenville and Columbia.... "	140	1,004,231	300,000	In prog.	.....	.....	.....	.....
South Carolina..... "	242	3,858,840	3,000,000	7,002,396	1,000,717	609,711	7	125
Wilmington and Manchester. "	.....	.....	.....	In prog.	.....	.....	.....	.....
Georgia Central..... Ga.	191	3,100,000	306,187	3,378,132	945,508	508,625	8	117
Georgia..... "	211	4,000,000	1,214	.....	934,424	456,468	7½	.....
Macon and Western..... "	101	1,214,283	168,000	1,596,283	296,584	153,697	9	109
Muscogee..... "	71	.....	.....	In prog.	.....	.....	.....	.....
South Western..... "	50	586,887	150,000	743,525	129,395	71,535	8	.....
Alabama and Tennessee River Ala.	55	.....	.....	In prog.	.....	.....	.....	.....
Memphis and Charleston.... "	93	776,259	400,000	In prog.	.....	.....	.....	.....
Mobile and Ohio..... "	33	879,868	.....	In prog.	.....	.....	.....	.....
Montgomery and West Point. "	88	688,611	.....	1,330,960	173,542	76,079	8	.....
Southern..... Miss.	60	.....	.....	.....	.....	.....	.....	.....
East Tennessee and Georgia. Tenn.	80	835,000	541,000	In prog.	.....	.....	.....	.....
Nashville and Chattanooga.. "	125	2,093,814	850,000	In prog.	.....	.....	.....	.....
Covington and Lexington.... Ky.	.....	1,430,150	1,100,000	In prog.	.....	.....	.....	.....
Frankfort and Lexington.... "	29	357,218	.....	584,902	87,421	44,250	.....	80
Louisville and Frankfort.... "	65	.....	.....	.....	.....	.....	.....	.....
Maysville and Lexington.... "	.....	.....	.....	In prog.	.....	.....	.....	.....
Cleveland and Pittsburgh.... Ohio.	100	1,239,450	1,371,000	2,963,756	194,429	123,306	6	96
Cleveland, Painesv. and Ash. "	71	.....	.....	.....	.....	.....	.....	.....
Cleveland and Columbus.... "	135	3,027,000	408,200	3,655,000	777,793	483,454	12	132
Columbus, Piqua and Indiana. "	.....	.....	.....	In prog.	.....	.....	.....	.....
Columbus and Lake Erie.... "	61	.....	.....	.....	.....	.....	.....	.....
Cincinnati, Ham. and Dayton "	60	1,694,000	906,000	2,600,000	321,793	200,967	.....	115
Cincinnati and Marietta.... "	.....	.....	.....	In prog.	.....	.....	.....	72½
Dayton and Western..... "	40	310,000	550,000	925,000	.....	.....	.....	80
Dayton and Michigan..... "	20	.....	.....	In prog.	.....	.....	.....	.....
Eaton and Hamilton..... "	36	.....	.....	.....	.....	.....	.....	70
Greenville and Miami..... "	31	.....	.....	.....	.....	.....	.....	.....
Hillsboro..... "	37	.....	.....	In prog.	.....	.....	.....	.....
Little Miami..... "	84	2,370,784	.....	2,634,157	526,746	314,670	10	119½
Mansfield and Sandusky.... "	.....	900,000	1,000,000	1,855,000	.....	.....	.....	.....
Mad River..... "	167	1,860,500	.....	.....	565,751	.....	.....	95
Ohio Central..... "	57	.....	.....	In prog.	.....	.....	.....	.....
Ohio and Mississippi.... "	.....	.....	.....	.....	.....	.....	.....	.....
Ohio and Pennsylvania.... "	187	1,750,700	2,450,000	.....	.....	.....	.....	.....
Ohio and Indiana..... "	.....	.....	.....	In prog.	.....	.....	.....	.....
Scioto and Hocking Valley.. "	.....	.....	.....	.....	.....	.....	.....	.....
Toledo, Norwalk and Clevel'd "	87	552,000	800,000	1,317,140	.....	.....	.....	150
Xenia and Columbus.... "	54	1,092,137	119,500	1,257,714	237,506	135,363	15	.....
Evansville and Illinois.... Ind.	31	.....	.....	In prog.	.....	.....	.....	.....
Indiana Central..... "	.....	.....	.....	.....	.....	.....	.....	.....
Indiana Northern..... "	131	.....	.....	.....	.....	.....	.....	.....
Indianapolis and Bellefontaine "	83	.....	.....	.....	.....	.....	.....	.....
Lawrenceburg and Ind..... "	.....	.....	.....	In prog.	.....	.....	.....	75
Lafayette and Indianapolis.. "	62	.....	.....	.....	.....	.....	.....	.....
Madison and Indianapolis.... "	88	1,650,000	750,000	2,400,000	516,414	268,075	10	97
Peru and Indianapolis.... "	40	.....	.....	In prog.	.....	.....	.....	.....
Terre Haute and Indianapolis "	72	632,387	663,100	1,353,019	105,944	71,446	4	108
Rock Island and Chicago.... "	.....	.....	.....	.....	.....	.....	.....	.....
Chicago and Mississippi.... "	.....	.....	.....	.....	.....	.....	.....	.....
Illinois Central..... Ill.	.....	.....	.....	In prog.	.....	.....	.....	136
Galena and Chicago..... "	92	1,932,361	500,000	In prog.	473,548	286,152	.....	125
Michigan Southern..... Mich.	315	2,499,410	2,629,000	6,430,246	592,187	293,046	.....	123
Michigan Central..... "	282	4,000,000	4,067,396	8,614,193	.....	.....	8	116½
Pacific..... Mo.	.....	.....	.....	.....	.....	.....	.....	.....

## Stock and Money Market.

The stock market has been inanimate for the week, with declining prices for fancies. On Wednesday there was a decided fall in a large number of them, owing partly to the fact, that the law requiring Banks to make weekly statements of their affairs is about to go into operation. They are, in consequence, drawing in their loans, and calling upon each other to make good their balances. Weak holders, therefore, are obliged to let the stock go. Very large sales were made of Erie, Hudson River, Nicaragua, and the Coal stocks. Erie touched the lowest point of its depression since the non-payment of the dividend. The fancy market looks decidedly blue. The prices for sound securities are well maintained, and there is by no means an over supply of such. Money is abundant, and private bankers readily supply all the calls at fair rates. The present inactivity is a good indication for the future. An unusually large business in the fall is anticipated. All parties seem disposed to await till affairs in Europe assume a more definite complexion, whatever course events may take there, would break the monotony here. The ordinary course of business cannot now be disturbed in any part of the world without influencing every other.

While little is doing in negotiations for new works, our roads in operation are having a season of remarkable prosperity. In nearly every instance their earnings show a large gain over last year. This is the case with old roads as well as with new. Below we give the returns for June for several roads, comparing their receipts with those for June 1852:

	1852.	1853.	Increase.
Mich. Cent...	99,236 40	119,433 44	20,197 06
Mich. South..	76,794 34	148,668 42	71,874 00
Ogdensburg..	48,167 94	51,039 36	2,871 42
Ohio & Pennsylv.	21,176 04	55,214 04	33,528 00
Penn. R. R..	122,152 33	166,978 59	34,824 76
Baltimore and Ohio....	170,545 00	220,606 00	50,055 00
Macon and Western....	16,469 58	16,592 01	.....
Cin. Ham. and Dayton....	25,096 15	33,302 93	8,006 78
Erie railroad.	312,367 90	362,748 90	50,381 82
New Haven Railroad ..	55,546 13	59,738 80	4,188 67
Hudson River.	64,827 73	94,928 79	30,151 06
Norwich and Worcester..	21,019 53	26,411 25	4,491 20
Milwaukee & Mississippi	5,163 34	18,362 18	13,399 35
Hartford, Providence and Fishkill ..	50,118 04	59,629 52	9,510 48
Harlem.....	55,699 04	80,591 00	14,252 00
Petersb'g, Va. (6 months).	102,505 03	117,262 91	14,668 88
Cleveland and Columbus..	73,593 00	91,366 00	17,773 00

## Great Western Railroad of Canada.

We give in another column the letter of R. G. Benedict, Esq., late Engineer of this company, vindicating himself from the reflections cast upon him in their recent annual report. As we gave the substance of the report, justice requires to publish Mr. Benedict's reply.

## Kentucky.

The Maysville and Lexington road is progressing steadily to completion. The line to Paris will be opened early in the fall.

**Lake Erie and Mad River Railroad.**

The recent annual report of this company, dated May 31, 1853, presents the following statement of its affairs:

	1852.	1853.
Earnings.....	\$332,872 98	\$540,518 14
Expenses.....	195,972 59	274,888 44
	236,900 39	265,729 70
Interest and taxes.....		155,288 53
Net earnings.....		110,44 17
Property account.....		2,960 00
Net income.....		113,401 17
Balance May 31, 1852.....		72,870 93
		186,272 10
Dividend August 1852.....		110,877 00
Balance May 31, 1853.....		75,395 10
The capital of the company is.....	\$2,387,200 00	
Bonds.....	1,767,000 00	
Other indebtedness.....	667,354 68	
Total.....	\$4,821,554 68	
Cost of roads and furniture.....	4,110,148 51	
Other property.....	711,406 17	

**Crystal Palace.**

We find some of our cotemporaries asking why no locomotives and other steam engines are exhibited at the Crystal Palace: why it is that in a country especially noted for the extent and importance of its railroads and the perfection of its railway machinery, no exhibition worthy of that interest is to be made. The *Scientific American* thinks our people could make a show of such machinery that would not suffer in comparison with that of any other country in the world. We do not think that any one, however, can be so innocent as to suppose that our locomotive builders feel any interest in the exhibition, or that they will employ it for the display of their machinery. Among the builders of our acquaintance, scarcely any regard is shown to the progress of the fair; there is a feeling that they have not been asked, and they therefore remain outside, contenting themselves with the assurance that display is not necessary to the success of their business. The management of the exhibition has made itself a stranger to a large and important interest, to one without which the exhibition would have been impossible. Men have caught the feeling that the sense of the exhibition is a speculation, a means for Advertising, and those who from the real value of their productions, and from their own reputation, are placed beyond the want of such aid will not voluntarily assist in the extension of such an influence.

The officers of some of the largest locomotive establishments in New England have already gravely inquired of us if it was expected that any machinery would be exhibited;—as they had not learned that any contributions would be made from their quarter. Philadelphians exhibit the same indifference, while at Paterson, the headquarters of the locomotive business, nothing has been done.

The board of commissioners of the Metropolitan railroad company, held a meeting on the 5th inst., in Georgetown. Ten thousand and nine shares have been subscribed, making a sum of \$500,450. The subscribers are to meet on the 28th of July to elect twelve directors for the ensuing year. It is to be hoped that their charter will be perfected during the coming winter.

**Modern Improvements of the Locomotive.**

There have been two general classes of alterations, wrought out at different times and under different circumstances, which have established the distinctive features of English and American locomotives. The alterations of the original machine tested in 1830 at Rainhill, on the Liverpool and Manchester railway, were made, first, by placing the cylinders inside of the smoke box, which though perhaps hardly an improvement, received considerable importance and was regarded as a leading feature of the new locomotive, from the essential value of other changes made at the same time. The insertion of the furnace within the boiler and the system of valve motion by four fixed eccentrics were very important improvements, and were adopted in the early English engines. From their adoption there were no striking, but many slight and useful improvements, until the perfection of the manufacture of engines had reached a stage which suggested the employment of expansive steam. Improvements then commenced in the proportions of the valves and communicating passages, in the introduction of the "early exhaust" and the necessary means for obtaining it—the "lap valve." The framing was soon after modified to use the present universal "inside bearing," by which much weight was saved and the parts of engine were rendered more accessible. From thence the first important improvements were the arrangement of the variable expansive gear by means of the curved link, and the system of counter balancing the momentum of the reciprocating parts of the engine. During all of this time improvements were continually making in the proportions of the different parts and in their combination, by which increased efficiency, accuracy and durability were obtained. The result of all these alterations has been the English locomotive, the standard of perfection for the nature of service it is called upon to perform.

The second series of alterations originated in America.—Here we could avail ourselves of all that had been done in England, and having done so there was little else remaining but to adapt our engines to a cheaper and more severe character of road. Upon the level and straight roads laid out in New England the English style of engines, as manufactured at Lowell, were considered as quite complete and efficient. But the severe character of the curves and gradients of the southern roads turned the attention of the Philadelphia builders to the importance of coupling one or more additional pairs of drivers to the pistons, and to make the engine as flexible as possible on the curves by the adoption of the truck frame. The "outside connection" was restored to such a general extent as to entitle our builders to some credit for its application; the chilled wheel was applied for the trucks and eventually with great success for the drivers; the "sparker" was introduced both for comfort and safety, and the locomotive was successfully adapted also for burning coal. During all of this time too, our builders were active in appropriating all the valuable experience of the English roads, so that the introduction of expansive working, both by separate valve and by the link, the inside frame, the counter-balanced drivers, etc., were made in this country at an early period after their first adoption.

The development of perfection in the locomotive

has been as gradual as is that of the oak, or of the human being. It has been attained by changes almost insensible,—by altering some part until its identity was lost and then by a substitution of a new member of improved construction and proportion. We can only realize their extent by regarding them in their combination, and by referring them to general epochs at the end of the series of years during which they have been made. To show what has been the improvements of the last five years (and this appears but a short time in the activity which has characterized them) we will state the difference between a first class engine of the present day, and one of 1848.

The allowance of heating surface and steam room for a given capacity of cylinder has been increased generally 25 per cent.

The action of the valve motion has been perfected in increased throw of valve and increased capacity of steam passages, and the consequent greater efficiency of steam admission: in an abandonment of "drop hooks" and the adoption of "vee hooks," or the link motion, and in the accessibility to the valve by the projecting steam chest, or the side cover of steam chest.

The attachment of the cylinder has been strengthened in many varieties of engines; the boiler braces have been arranged to admit of the expansion of the boiler without straining upon the frame.

The truck frames have been made more elastic, and have been adapted to take their load, many of them, upon their centers.

The dome boiler has gone out of use.

The pumps have been made more generally of brass, and are less subject to corrosion about their joints. They have been generally provided with air vessels on both their suction and forcing sides. The check valves have been removed from near the tube sheets, which has tended to keep the latter tight.

Double domes and throttles have been used to equalize the draft of steam from the boiler.

The practice of fitting the grates closely to the interior of furnace, of closing up their front ends, and the use of a damper have been more observed than previous to five years ago.

Tightening wedges have been applied to take up the wear between the driving boxes and pedestals.

Brass tubes have been used extensively and approved of, from being cheaper, stiffer, less liable to incrustation, having a better distribution of metal whereby the thickest parts are nearest the fire, and from their having no brazed joints. A better size of tube is being introduced—two inch tubes are adopted on all new engines in place of the 1¾ inch tubes generally used for so long a time past. With a long tube it is not believed that so good a draft can exist with the small as with the larger tube. This result has been ascertained in the cases of a large number of engines.

The chilled slip tire has been very generally introduced within this period. It has recommended itself by its great economy, and by being equally as durable, safe and adhesive as the wrought tire.

There has been much more attention paid, than previous to five years ago, in balancing the drivers against the disturbing forces generated in the machinery. This matter has been so well provided for that the antiquated objection to the "instability



ty" of outside connections is now well removed.—The most important lines use the outside connection, where the question of the gauge of their track forms no part in the consideration of the best engine. In fact, a feeling has arose in the minds of some builders and managers, that a wide gauge is unfortunate, as it almost necessarily involves an inside connected engine.

The extension of another good feature has been the increased use of the ten wheel engine. This description of engine has been adopted extensively on the Erie and the Baltimore and Ohio road. Its advantages are that where four of the wheels are combined in a center bearing truck, the six remaining drivers have sufficient adhesion, if not as much as the eight driver engine, while the whole engine is more flexible than an eight driver engine, and is easier upon any single point than an engine having but four drivers. The four driver engine does not possess sufficient adhesion under all circumstances, unless with large engines it carries too much weight on a single point; the eight drivers are too rigid unless clustered together, and have more adhesion than is required under ordinary circumstances. The ten wheel engine allows of a much better cylinder connection than the eight driver engine, as the outside cylinder may be brought down nearly horizontal, and the connecting rod be applied close beside the wheel. A ten wheel engine secures also a convenience in applying the tires, for with the slip tire, which is the most secure and economical method of applying a tire, all the tires will be back, out of the way, of the cylinder, and can be renewed without raising the engine off from its springs until the cylinder is elevated over the front driving wheel. It makes the changing of a set of tires but half a day's work.

We see, almost daily, a large number of the class of engines built just previous to the commencement of the changes made within the last five years. They have small boilers and furnaces, say from 550 to 600 square feet of tube surface, and 8 square feet of grate, for a 15 inch cylinder. There was one small dome, and the steam pipes to each cylinder were not over half the size of a single steam port. The travel of the valve was but 2¾ inches. The commencement of the exhaust was at a late period of the stroke of piston. The valve motion consisted of a complicated "drop hook" motion, with tubular rocker shafts, and there was an independent cut off in a separate chest. The cross heads and slides were of an inferior pattern. The jaws of the frame were of a clumsy pattern of cast iron and had no means for taking up the wear between them and the driving boxes. The pumps were of cast iron, worked by a complicated and expensive "short stroke" motion. The tube sheets were iron, and the check valves were placed on the side of furnace. The trucks were rigid and had side bearings always. And, throughout, the engines were without graceful proportions, being rude and plain both in design and finish.

We do not hesitate to say, when we compare the locomotives of 1848 with the superb engines now in use on the Baltimore and Ohio, the New York and Erie, Hudson River, and especially the New Jersey Railroads, that the locomotive has received more improvements than any other class of machinery which has been in operation during

the period of these alterations. And the result is confirmed in the increased speed of railway communication and in the fact that heavier engines at higher speed are still maintained at the same expense for repairs per mile run as at a period of five years ago.

#### New Orleans, Opelousas and Gt. Western Railroad

The stockholders of this company held an adjourned meeting on January 24th, 1853, at which resolutions were passed to call a future meeting to take into consideration the policy and propriety of amending their charter; and also requiring a payment of 10 per cent. on all stock subscriptions on the first Monday of April following, also 10 per cent. on the first Monday of October, 10 per cent. on the first Monday of January, 1854; 10 per cent. on the first Monday of April, 1854; 10 per cent. on the first Monday of September, 1854; 10 per cent. on the first Monday of January, 1855; and 5 per cent. on the first Monday of April, 1855.

We have a copy of the report of the President and Directors, which was read at this meeting, which gives the following exhibit of the condition and prospects of the work.

The New Orleans, Opelousas and Great Western railroad corporation was chartered in April, 1852, with a capital of \$3,000,000. The route of the road indicated in the charter was from Algiers, on the opposite bank of the Mississippi from New Orleans, westward near Thibodeaux, across Berwick's Bay to Washington, in the Parish of St. Landry; thence to a point on the Sabine River most favorable for the construction of said road, through the State of Texas to El Paso, on the Rio Grande, and thence to the Pacific Ocean. The road to be made on such a scale as to serve for the main trunk railway from New Orleans to the Pacific.

The private subscriptions to the period of the report amounted to \$759,835; the city of New Orleans has also subscribed \$1,500,000, payable from a six years property tax of one-third of one per cent. annually. The following Parishes have also subscribed as annexed—

Parish of Orleans, \$75,000, by a five years' tax of one per cent. per annum, from January 1853.

Parish of St. Mary, \$156,600, by a six years' tax of one-half of one per cent. per annum from June 1, 1853.

Parish of St. Martin, \$103,775, by a five years' tax of one per cent. per annum from June 1st, 1853.

Parish of Lafayette, \$33,400, by a tax as in St. Martin.

Parish of St. Landry, \$115,625; taxed as in St. Martin.

Parish of Natchitoches, \$250,000, by a 5 years' tax of three and one-half per cent. per annum, commencing June 1st, 1853.

The aggregate of the tax stock subscriptions is \$2,234,400, all of which have been approved and ratified by the qualified electors in the respective localities, and generally by large and commanding majorities. The tax to pay the subscription is levied upon, and secured by, landed property of the valuation of one hundred millions of dollars.

The whole amount of all subscriptions is \$2,994,235, or within \$5,765 of its entire capital.

The company have, besides, the prospective subscription of De Soto Parish, recently voted, of

\$100,000, with its private subscription of \$58,325, and the offer by its citizens of an increase of subscription to the sum of \$200,000 on condition of the location and construction of the road through their Parish.

There is also an offer of a subscription of \$74,000 from the western portion of Avoyelles, upon the same condition as from De Soto.

Thirty-five per cent. of the private subscriptions have been called, and \$140,361 88 have been paid in. Two large lots of land opposite the city have been purchased for depots. The price paid was \$60,000.

In June 1852, Mr. James G. Gibbs was appointed Chief Engineer. Under his direction 82 miles of the road have been located to Berwick's Bay. Ninety one miles more from thence to Washington would be located by March, 1st 1853. Of the first division to Berwick's Bay, 55 miles are under contract, of which 20 miles are ready for the superstructure.

Up to the date of report the receipts and expenditures are as follows.

Receipts on account of Capital Stock.....	\$140,361
Disbursements.....	64,156

Balance on hand.....	\$ 76,205
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#### PROSPECTIVE MEANS FOR CURRENT YEAR.

Due on Instalments already called in.....	\$125,580
Instalments on Tax Stock payable on or before June 1st.....	395,186

Balance on hand.....	79,205
20 per cent assessed at Stockholders meeting.....	140,000

	\$736,971
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The fifth of capital paid, if allowed by the State, will be.....	160,000
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The contracts for construction and equipment amount to.....	555,000
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Owing to the advance in iron which will amount to \$800,000 on the line from New Orleans to Washington, 173 miles it, will be necessary to increase the capital of the company to extend its work to the state line at Texas.

The trunk line of the road through Louisiana traverses and develops twelve millions of acres, the most of which are unpeopled and untilled; It passes three degrees of latitude and over four distinct geographical formations.

The first is the Delta proper of the Mississippi River, ending at Berwick's Bay. It is exclusively a sugar growing region.

The second district is upon the belt of prairie skirting the Gulf coast westwardly to the Rio Grande. This district is a cotton and sugar growing region and exports annually 40,000 head of cattle.

The third district from Washington, the point of intersection with the valley of the Red River, embraces the entire allusion to the village of Natchitoches.

The fourth district embraces the table lands between the Red River and the Sabine. The entire crop of 1851 raised in these districts amounted to 112,084 hogsheds of sugar and 7,112,950 gallons of molasses, besides from 90,000 to 100,000 bales of cotton.

The line of road from the intersection of the 32 parallel of latitude, runs west through the best part of Texas, a country adapted for the cultivation of cotton and grain. The distance from New Orleans to Logans port on the Sabine is 340 miles. The distance across Texas to the Rio Grande, 704 miles; from thence to San Diego 585 miles,—

making the whole distance from New Orleans to the Pacific Ocean 1610 miles.

The following is the Engineer's estimate for the construction of the road.

First Division 82 miles.....	\$1,125,000
Second " 91 " .....	1,067,500
Branch to Breaux Bridge, 18 miles...	180,000
Lands Depots &c.....	170,000
10 First Class engines.....	80,000
20 Passenger and 100 freight cars.....	110,000

\$2,787,500

or \$14,330, per mile.

#### Wabash Valley Railroad.

On the 4th inst. a meeting of the stockholders in the Wabash Valley railroad, met at the town of York, in Edgar county, for the purpose of electing directors. The following gentlemen were chosen:

U. Manley, Jas. Welch, R. P. Ober, and J. B. Richardson, Clark county.

Jonathan Young, Edgar county.

Jas. C. Allen, O. H. Bristol, A. C. French, and E. Callahan, Crawford county.

John Shepherd, and Jasper Catlett, Lawrence county.

After the election of directors was over, and the result announced, the new board organized by electing

O. H. Bristol president, Uri Manley vice president, John Houston treasurer, John B. Richardson, secretary.

We copy the following notice of the proposed route from the Wabash Valley Republican.

The railway from Mobile, Alabama, terminating at Paducah, Ky., on the Ohio river, is 464 miles in length; something near 200 miles of this road is built and in operation, while the balance is provided for by the large donation of public lands voted by Congress. The work on it is pushed with great energy, and it is anticipated that it will all be completed within the next two years. From Brooklyn, opposite Paducah to Vincennes, the distance is 130 miles. On this part of the route, the individual subscriptions amount in the aggregate to \$200,000; in the city of Cincinnati \$400,000 more, being a sum more than sufficient to grade and bridge the entire route. In addition to this subscription they are endorsed by the Ohio and Mississippi railway company, giving them a credit to purchase all the rail necessary for building the road. With this prospect of certainty before them Judge Ellis resigned the presidency of the Cincinnati and St. Louis railway and accepted that of the Paducah and Vincennes road. The engineers are now busily engaged in their surveys and estimates, and the whole road will shortly be let to efficient contractors. It is intended that it shall be completed by the time that the Cincinnati and St. Louis road reaches Vincennes.

From where the connection is made, some four miles west of Vincennes, to Paris, it is by survey, some sixty-four miles, all told, over one of the best routes in the State, a large portion of the grading of which can be done very cheaply. The supposed cost for bridging and grading is estimated to be about \$160,000, some little more or less, of which there is at this time about \$80,000 subscribed. From Paris to Chicago, by way of Joliet, is 175 miles, and there cannot be a shadow of doubt, but that if the Paducah road and ours are built, the Joliet and Terre Haute road will immediately follow. Just see what a connection:

From Mobile to Paducah,	464 miles.
" Paducah to Vincennes,	130 "
" Vincennes to Paris,	64 "
" Paris to Joliet,	135 "
" Joliet to Chicago,	40 "

833

At 21 miles per hour, which is a moderate speed

on railways, 40 hours will carry a passenger from Mobile to Chicago. From Paris, the merchant trader or speculator may reach Mobile for the transaction of business in 31 hours. Here are facts, briefly condensed and thrown together for the consideration of those concerned—the details being too extended for an ordinary newspaper article. Enough we think has been given, to show that the Wabash Valley road is an important one, with fine prospects of being classed A. No. 1.

#### Cleveland and Pittsburgh Railroad.

We believe there is not another railway in the country, of the same length, that is paying a better return to its stockholders than this. The road is 100 miles in length, and from its commencement, has been doing all the business its capacity would allow. The several branches of this road already in operation, and the two now in progress of completion (the Wheeling and Beaver Extensions) will open a region of country which must find a market over the main trunk of this road, not equalled in any portion of Ohio, or any other State.

The stock of this road, ever since it was opened, has been above par, and has sold readily, when it has been in market. This is certainly encouraging to those who labored and toiled for the completion of this work. Further: we have no hesitation in saying that there is not a better managed road in the United States. Every care is taken for the safety and convenience of passengers. The road has been in operation over two years, and not a passenger has been killed. This fact speaks more for the Superintendent, Conductors, Engineers, and officers of the road, than volumes of paid for newspaper twaddle. The directors will not employ any other but safe and experienced officers, and this accounts for the fact alluded to. We do not believe there is another road in the Union carrying, as this does, over 800 passengers every day, of which it can be said, not a passenger has been killed.—*Ravenna Whig.*

#### Blue Ridge Railroad.

The construction of this road appears to be now placed beyond a contingency, by the recent subscription of \$549,000 to its stock, by the City of Charleston. The State of South Carolina has also subscribed \$1,250,000 to the project. The following letter from the President of the road, addressed to the City Council of Charleston, showing the present condition of the company, will be read with interest. The road is one by which the city of Charleston proposes to open for herself an independent railway to the Tennessee Valley.

CHARLESTON, July 12, 1853.

To the Honorable the Mayor

and Alderman of the City of Charleston.

GENTLEMEN: In behalf of the Blue Ridge railroad companies, chartered by the State of South Carolina and Georgia, I have now the honor to lay before your honorable body the copy of an agreement entered into between the two companies, and W. G. Swan Esq., President of the Knoxville and Charleston Railroad Company, by which the company is placed under the management and control of the two companies above named.

I have also to lay before you the draft of an agreement made with Messrs. A. Bangs and Co. contractors, by which they engage to construct and equip the entire line of road from the starting point in the state, through to Knoxville, so that the condition of the state endorsement, and of the subscription of a further sum of five hundred and forty-nine thousand dollars (\$549,000) on the part of the corporation of the city of Charleston, has been complied with.

The arrangement made with the Knoxville and Charleston Railroad Company, though it increases the responsibility of the other companies, and may delay somewhat the completion of the entire line, vesting as it does the entire control and regulation of freights, &c., in the Carolina company,

is regarded by the directors, as of vast importance to the interests of this city, and of the state generally.

Recent examinations have reduced the length of the several roads, as exhibited by the first surveys and it is not improbable that it will be still further diminished when the final location is made. From the point of departure in this state to the Tennessee state line, the distance is 135 miles, and thence to Knoxville it is 45 miles, making the length of road to be constructed 180 miles.

Railroads are now in the course of construction from Cincinnati and Louisville to Danville, in Kentucky, and charters have been obtained and subscriptions are now being made to complete the connection between that point and Knoxville, 140 miles. Thus, in a very few years, there will be an uninterrupted line of railroads from Charleston to Cincinnati, of 631 miles, and to Louisville of not exceeding 600 miles.

The directors have therefore to congratulate the city on the progress that has been made towards the construction of this great work, and they would express the hope that your honorable Body will regard the condition on which the city subscription was made as having been complied with and that you will proceed to render it available to advance the interests involved.

I have the honor to be very respectfully,

H. GOURDIN,

President Blue Ridge Railroad Co.

#### North Missouri Railroad.

We announced, several days ago, that the Michigan Central Railroad company have become interested in the North Missouri Railroad, and that Messrs. J. W. Brooks and James F. Joy had been chosen Directors of the latter company, and subsequently Mr. Brooks elected its President.

Since then we have taken occasion to inquire into the object of the North Missouri Railroad company, and the connection it proposed to form with eastern roads.

The charter for the North Missouri Road locates its eastern terminus at Burlington, Iowa, and its western at a point on the Missouri river opposite where the Platte river enters the Missouri, about twenty miles below Council Bluffs.—The distance is three hundred miles, and the section of country between Burlington and the Missouri river is unsurpassed as an agricultural district. There is abundance of water throughout the entire distance, and the prairie and timber lands are divided in proportions suitable to the wants of a large population. There is not probably, any portion of the United States, where the essentials, soil, timber, good water and mill streams are better proportioned.

Burlington, the eastern terminus, is only sixty miles south of Chicago, and eighteen miles south of the mouth of the Platte river. From Chicago to Burlington, there will be a direct line of rail road finished this year,—the Aurora, Central Military Track, and Burlington branch of the Peoria Road. The distance from Burlington to Chicago is only 22 miles further than to Montgomery, in Iroquois county, a point south of Chicago and east of Burlington; so that the line from Burlington to Detroit, via Chicago, will not be over 20 miles further than direct east by an independent road. This being the case, we take it for granted that no "cut off" will take from Chicago the trade and travel passing east, and west via the North Missouri Road. Indeed we are aware that the Michigan Central Railroad does not want any "cut off" but desires to make this city the great theatre of consumption for business. Its connection with the Aurora and Central Military Tract-Roads are well known, and also that its object is to feed those roads, and through them the great trunk road between this and Detroit. Hence it has become interested in the North Missouri road, via Aurora.

This North Missouri road, therefore, becomes an important work to Detroit. It will pour into this city a stream of travel and trade from a point below the section of Iowa drained by the Rock



Island cut off, and greatly aid in building up the commerce. That the road will be built, and speedily, too, we have not a doubt. The Michigan Central Railroad company, has an abundance of capital and credit to carry through whatever it undertakes, and Mr. Brooks, above any other man, is most capable of carrying out the intentions of the company. His name, as President of the North Missouri Road, is a guaranty to capitalists and the people of Chicago, that it is not only a first class enterprise, but that it will be prosecuted vigorously to completion. Indeed, we understand that part of the line between Burlington and the Des Moines river will be put under contract immediately; and that the whole line from Chicago to Council Bluffs will be completed within thirty months.

#### Evansville, Illinois Railroad Company.

We are pleased to learn that this company are pursuing the right course in relation to railroad crossings. It proves that they are determined to spare no expense to prevent the loss of life at such places. We hope to hear of other roads adopting a like course.

The following preamble and resolution were adopted at a recent meeting of their Board of Directors:

"Whereas the Mississippi Railroad and the Evansville and Crawfordsville Railroad cross nearly at right angles at or near the Borough of Vincennes, Knox county, Indiana—and whereas many accidents have happened and many lives have been lost in consequence of the trains belonging to different roads coming in contact at such crossings—and whereas it is believed that all casualties arising from that cause, may be entirely prevented by mutual arrangement between railroad companies, one raising an embankment and the other making an excavation, so as to have one train pass under the other—Therefore it is resolved that the President of the company correspond with the President of the Ohio and Mississippi Railroad Company, and enter into such arrangement as will best carry into effect the object set forth in the foregoing preamble."—*Evansville Journal*.

#### Louisville and Covington Railroad.

Two corps of engineers are now in the field, locating the line of this road: one working west from Covington, the other east from Louisville. The entire line will be located in about two months. But few hands are at work yet, for the reason that the side stakes have been set at only one or two points. We are assured, however, that just so fast as sections are prepared for grading operations, laborers will be put upon the line.

Although the precise track of the Louisville and Covington road is the matter which the surveyors and officers are now determining, enough has been settled to show within a very material distance where the rails will be laid. From Louisville up as far as the mouth of Patterson's Creek, the road will run along the river near the foot of the second bank, about ten feet above high water mark. The grade for this distance varies from ten to fifteen feet to the mile. The road will then run up Patten's creek, with grades part of the way fifty to fifty-five feet, to where the head branches of that creek interlock with the head branches of the Little Kentucky river, when it will descend and pursue the course of the Little Kentucky to Carrollton. This takes it over the high Bedford ridge, and avoids the great bend in the Ohio river at Madison.

The Road will cross the Kentucky river at Carrollton by a splendid stone bridge, with a draw—two spans of 225 feet each. From this point to the mouth of Gunpowder creek, it will again pursue the course of the Ohio. To avoid the great bend in which lies Boone county, it will pursue Gunpowder creek up to where the head branches of that stream interlock with those or the small brooks that descend to the Ohio opposite Cincinnati, and taking down these pass in the rear of the race-course nearly opposite the mouth of

Millcreek, (the western boundary of Cincinnati) and sweep around the slope of Lone Tree Point into the city of Covington.

All tunneling is avoided by the route, and a line gained which will be within 108 miles in length. About three quarters of this distance is very "plain sailing;" the residue of the line has heavy grades and what may be called great curvature. At the mouths of the numerous creeks crossed, of course there will be a good deal of masonry; but the fills are not large except at a very few points, nor will the excavations be heavy. Altogether, we doubt not the road will be one which can be run for the average cost and with more than average speed. It is contemplated to have the cars in daily operation between Covington and Louisville, within a period of two years.—*Louisville Courier*.

#### Grand Trunk Railway.

We learn that the following are the names and some of the salaries of the principal officers of the Grand Trunk railway—

President—Hon. John Ross.  
Vice President—B. Holmes, Esq.  
Chief Engineer—Mr. Ross—£3,000 stg.  
Assistant Engineer—Mr. S. Keefer—1000.  
Secretary—Mr. C. P. Roney—1,500.  
Superintendent—Mr. Bidder—1,500.  
Agent at Portland—Hon. J. S. Little—\$3,000.  
Accountant at Portland—Mr. C. E. Barrett—\$2,000.—*Sherbrooke Gazette*.

#### Kings Mountain Railroad.

The annual meeting of this company was held, in our village on Monday last. The stockholders, being generally citizens of our district, always find it convenient and agreeable to attend in person, which makes the day quite a bustling and crowded scene. The road has now been in operation for near ten months. The reports of the officers of the road exhibit the gratifying intelligence, that notwithstanding the newness of the project, and the washing away of the bridge of the Charleston and South Carolina Railroad last fall, and the consequent loss of freight and travel for about two months, the Kings Mountain Railroad realized a net profit of upwards of four per cent. If then five per cent, and it will be near this amount if we add the two additional months, for the year, be realized the first year of a road's operation, is it not more than probable that a full seven per cent dividend may be declared the second year. The general experience of roads is that freight and travel steadily and progressively increase. Facts and figures are stubborn things, and the stockholders of the Kings Mountain Railroad cannot but be pleased with the results of the working of the road the first nine months and twenty-two days.

The report of the officers of this road further shows the very remarkable fact, not often heard of in the history of Railroads, that if the Railroad thought proper to sell the two hundred shares of Charleston and South Carolina Railroad stock, amounting, at par value, to twenty-five thousand dollars, held and owned by it, the road would be able to pay off every cent of its indebtedness and have a large surplus on hand. The truth however is, that the creditors of the road do not want their money, and regard the road as a very safe debtor, and the road was very willing to pay seven per cent for borrowed money, whilst the South Carolina Railroad stock was refunding it by paying seven and one-half per cent. It is thus seen that the stockholders of this road could in one or two years pay off all their debts by the ordinary means of their road, and have the 25,000 dollars of South Carolina Railroad stock as a clear and unembarrassed fund of income besides the profit of the road. Can any other road in the United States show such a balance sheet. We pause for a reply.

The following gentlemen have been elected officers of the Road for the present year:

Col. Wm. Wright, President: John S. Moore, George Steele, Col. W. C. Beatty Dr. Samuel

Wright, Dr. James M. Lowry, Samuel Rainey, Jr., F. H. Simril, and John Webber, Directors.—*Yorkville Miscellany*

#### Indiana.

**The Railroad City.**—We have frequently been asked, "What is the number of railroads making Indianapolis their terminus?" and we have never been able to tell exactly. Yesterday, at a little trouble, we procured a list of the names of the railroads finished or in contemplation, running to this city.

The following roads are contemplated, and are running trains regularly every day:

1. *Madison and Indianapolis.*
2. *Terre Haute and Indianapolis.* Two trains daily.
3. *Indianapolis and Bellefontaine.* Two trains daily to Cleveland, Pittsburgh, Dayton and Cincinnati.
4. *Lafayette and Indianapolis.*

The following roads are partially completed:

1. *Jeffersonville and Indianapolis.* By this road in connection with Madison, daily trips are made through, between Louisville and this city. Arrangements have been made with the Lawrenceburgh road, by which trains will soon run through between Jeffersonville to this city, without transhipment of passengers or baggage.
2. *Peru and Indianapolis.* Daily trains are run upon this road to Tipton, a distance of forty miles. The road will be completed through to Peru, 75 miles, by the 1st of December next.
3. *Central Indiana.* From Indianapolis to Richmond, will be completed by the 1st of September.
4. *Lawrenceburgh and Indianapolis.* This road is completed from Lawrenceburgh to Greensburg, a distance of about 40 miles, and the iron is being rapidly laid at both ends of the remaining portion of the road. It will be finished early in the fall.

The following roads have been surveyed and are partially under contract, or are being surveyed.

1. *Evansville, Indianapolis, and Cleveland Straight line.*
2. *Vincennes and Indianapolis.*
3. *Branch of the Salem and New Albany, from Gosport.*
4. *Indiana and Illinois Central.*—From Indianapolis to Hannibal on the Mississippi.
5. *The Junction Road.*—From Cincinnati to Indianapolis, via Hamilton, Rushville, &c.
6. *Cincinnati and Indianapolis Straight Line*—via Harrison, Brookville, &c.
7. *Aurora and Indianapolis Broad Gauge,*—to connect with the Ohio and Mississippi, at Aurora.

Making fifteen roads with about 1480 miles of track. In addition to the foregoing, a company has recently been organized, to build a road directly from Greensburg to Cincinnati, to connect with the Lawrenceburgh road at the former point. All the above roads, not already finished, will be certainly built, except perhaps one, or, maybe two of but little importance. Who says that Indianapolis is not entitled to the appellation of 'The Railroad City?'—*Indiana State Sentinel*.

#### Georgia Railroads.

There are 990 miles of railroad now in actual and profitable operation in the State of Georgia. In addition to these, the city of Savannah has just surveyed a road to Florida, having its western terminus at Pensacola, a distance of three hundred and eighty miles. Savannah will build to its western border, two hundred and ninety miles.—\$5,500,000 have been subscribed. Besides these roads, three more are in contemplation, and will certainly be built. These will make the system of railroads in Georgia amount to one thousand five hundred miles, (road built and under way.)

**Cincinnati and Indianapolis Short Line Railroad.**

A company was formed in this city a few weeks ago, says the Indiana State Journal, for the purpose of constructing a railroad from some point on the Lawrenceburg railroad, below Greensburg, on as direct a line as possible to Cincinnati. John H. Bradley, Esq., of this city, is the President of this Company, and if perseverance and energy will push it forward, it will soon be completed.

We understand that an agreement has been entered into between Mr. Bradley and C. B. Smith, Esq., President of the Cincinnati Western railroad Company, by which the Short Line Company have obtained the right to make, and exclusively own and use, a branch of the Western road from Harrison, Ohio, to the main line of the Western railroad at a point about five miles from Cincinnati, and from thence into the city, to make, own and use the five miles of the main line, jointly with the Western railroad company.

This arrangement may be regarded as of great importance to the short line road, as it now has an excellent and continuous line from the Lawrenceburg road to the heart of Cincinnati. It also gives to the Lawrenceburg company a connection with Cincinnati at a less cost, probably, than by any other route.

It only remains now to consummate arrangements with which Mr. Bradley is vigilantly progressing for the advantage of his company, to give us connections of great importance to our city, as well as to the travelling public.

It is proposed to unite the interests and the means of the White River Valley railroad, and the company in Ohio (with the title of which we are not acquainted, but known as Reemelin's road), with the "Short Line road," in making the road through Ohio.

The two companies could make the road wide enough for their respective tracks, jointly, at a much less cost than to make separate roads. Each then could put down its own tracks. It seems to us that the true policy of all the companies concerned demands the consummation of the arrangement.

**Maine.****Androscoggin and Kennebec Railroad.**

From the recent report of the Directors of this road we have the following statement of the business of the road for the year ending June 1st, 1853.

Earnings from Passengers.....	\$71,647.68
" " freight.....	63,210.19
" " other sources.....	5,708.55

Total earnings..... \$140,561.42

An increase of about 12 per cent over the earnings for the previous year. The expenses of operating road were for the past year \$60,507.99, leaving \$80,053.43 as net earnings.

The contract made in July last, (one year ago) with the Atlantic and St. Lawrence road, for the division of receipts from the joint business, allows that company 40 cents per passenger and sixty-five cents per ton of freight carried by them 28 miles, from Danville Junction to Portland, and in the same proportion to intermediate Stations. During one year \$48,021.96 have been paid to the Atlantic and St. Lawrence Railroad, on this account. A contract has also been made with the

Androscoggin road which will extend to July 1st 1854.

The cost of the road, or construction account including \$44,210 of convertible stock coupons, is \$2,064,458.08.

The Bonded debt is.....	\$1,016,500.00
" Floating debt is.....	191,269.56

\$1,207,769.56

The following gentlemen were elected Directors for the ensuing year:

A. P. Morrill, Readfield; William Willis and Ira Crocker, Portland; Ashur Hinds, Benton; John M. Trye, Lewiston; Lysander Cutler, Dexter, Wm. M. Longley, Greene.

(We published the list of Directors in our last number but give it again in connection with the report.)

**Locomotive Building.**

Since the publication of our list of the locomotive shops in the United States we have learned some further particulars of shops in operation and in progress, which we give below.

M. W. Baldwin, of Philadelphia is now building at the rate of seven engines per month. The Pennsylvania Central Road is being almost entirely stocked with engines from his establishment.

Norris & Son have reached beyond 700 as the number of engines made at their establishment.

There is a large establishment in Richmond, Virginia, known as the "Tredegar Works." It was started by Jos. B. Anderson of Richmond and John Souther, of Boston. Since its commencement D. N. Pickering, of Boston, has become associated with it while it is currently reported that Mr. Souther has withdrawn. The works are of the capacity of four engines per month.

The New York Locomotive Works, at Jersey city, will be completed in a short time, and will be prepared to complete three engines per month.

Two companies have been organized in Pittsburgh, but we do not learn if either have taken active steps in the erection of a locomotive shop.

At Louisville we hear of a new locomotive factory as being in progress of erection.

There is also the locomotive establishment of the Nashville Manufacturing Company at Nashville, Tenn.

Messrs. Palm and Robertson of Saint Louis have a heavy contract with the Pacific Railroad for the construction of engines. The entire equipments for the construction of railroads may already be supplied at Saint Louis.

**New Haven and New London Railroad.**

We have a copy of the report of the Directors of this road made April 19th, by which the gross earnings from July 1, 1852, to April 1, 1853, comprising the first nine months of the operation of the road, were..... \$55,978.06

Expenses for working road.....	35,266.79
	\$20,706.27

Out of this sum have been paid interest on seven per cent bonds..... 19,950.00

Leaving as net earnings..... \$756.27

The amount of stock paid in is \$730,877.82.

The funded debt of the company consists of \$450,000 7 per cent mortgage bonds; and \$138,879 have been sold and paid (out of \$200,000 issued,) of 6 per cent. bonds, not mortgage.

The whole cost of construction and equipment of road is \$1,297,798.99.

**Cincinnati, Wilmington and Janesville Railroad.**

At the Boston Locomotive Works a few days since we saw two fine inside-connected passenger engines designed for this road. They had each 5½ feet drivers and "link-motions" for working the valves. They were called "Pickaway" and "Fayette," and were quite ready for delivery. The Circleville Herald, speaks of the progress of this road as follows:

"The track laying commenced west of the river, at this place last Monday morning. One thousand tons of the iron for the road have arrived at this place, and more is constantly coming. The work will be pushed forward as rapidly as possible, to Williamsport, in order to transport the stone for the bridge across Deer creek over the road to that place. Now the work goes bravely on."

**New York, Newburgh and Syracuse Railroad.**

The following gentlemen have been elected officers of this road:

*President.*—Hon. Allen M. Sherman, of Orange.

*Vice President.*—Maj. Moses D. Burnett, of Syracuse.

*Directors.*—Robert A. Foreyth, Cornelius C. Smith, Hon. William C. Hasbrouck, and Hon. A. M. Sherman, of Newburgh; Maj. Moses D. Burnett, Thomas G. Alford, William B. Kirk, and John J. Peck, of Syracuse; Chas. Hathaway of Delhi; Orin Griffin, of Hobart; Joshua V. H. Clark, of Manlius; Albert L. Pritchard of New Berlin, and Smith M. Purdy of Norwich.

**Immense Boiler Plate.**

In the Crystal Palace, in New York, there is a boiler plate of *Low Moor Iron*, which weighs 2,700 pounds. It is 19 feet 4 inches long, 4 feet 10 inches wide and ¾ of an inch thick. It is larger than any plate exhibited at the World's Fair at London.

We quote the above from a cotemporary. A plate of iron of this size could not weigh over 1400 lbs. Iron of ¾ ined thickness weighs 15 lbs per square foot.

**Boston Locomotives.**

We saw a new outside connected engine in Boston, last week, which was about starting from the Worcester depot on its way to the Ohio and Indiana road. This engine, called the "Crestline," was built by John Souther and Company, and exhibits some changes from the rather antiquated class of engines which have heretofore been built by that establishment. It has "full stroke" pumps of an improved pattern and has check valves near the forward end of boiler. It has also been fitted with the "link motion," instead of the "link hooks" and "cut off" so long adhered to. These changes have simplified its construction and given it a modern appearance. The "cab" has also been made in a style more in accordance with improved taste, but the dome and escape pipes remain in remembrance of the "old style." The new outer frame which has been applied, consisting of a single bar, about 4 inches by 1 inch, does not appear to us to afford sufficient security in the attachment of the cylinders, which have no direct attachment to the smoke-box. The pressure of the hand will spring this rail sensibly within a short distance of the cylinder. The engine is how-



ever an improvement on the style to which this establishment has faithfully adhered for five years past until now.

#### New York.

**Northern Railroad.**—The last annual report of this company, made up to December 31, gives the following statement of its business for 1852—

Gross receipts.....	\$480,137 04
Expenses.....	284,290 06

Leaving as net income.....	\$195,846 98
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The total cost of construction and equipment to April 1, 1853, is.....	\$4,503,004 45
Interest paid, discount on bonds, &c.....	680,829 99

\$5,133,834 44

Which has been received from

Capital stock.....	\$1,579,969 61
Bonds.....	2,969,760 00
Floating debt.....	584,104 83

\$5,133,834 44

#### Mechanical Drawing.

The second number of the Practical Draughtsman's Book of Industrial Design and Engineers and Machinist's Drawing Companion is now issued by Stringer and Townsend. It is a useful number, being devoted to the construction of polygons, the principles of projection and the elements of Architecture; all of much importance to students of the practical success. It is illustrated by four double page copper plates, forming, in clear style, the reference of the text. Being an amateur in this art we speak advisedly of its value, and we may further say that its adoption as a text book has taken from us nearly all responsibility of the instruction of a young friend and pupil at home.

#### Ashtabula and New Lisbon Railroad.

The friends of this road held a meeting at Canfield, on the 4th. The people of Ashtabula, Trumbull, Mahoning and Columbiana assembled and organized by the appointment of H. R. Sarmon, of Trumbull, president, and Dr. Elwell, of Ashtabula, secretary. The convention was addressed by Messrs. Brewer, McCook and Hartshorn, of New Lisbon; Gen. Roller, of Green; Eben Newton, of Canfield, Dr. Elwell, and O. H. Fitch, of Ashtabula. The following gentlemen were elected directors of the Ashtabula and New Lisbon railroad:

Henry Hubbard and Frederick Carlisle, of Ashtabula, L. B. Austin, of Austinburg, J. R. Giddings of Jefferson; J. H. Holcomb of Canfield; Henry Springer, and Anson L. Brewer, of New Lisbon.

#### Cleveland, Columbus and Cincinnati Road.

The receipts of this road for June, 1853, are.....	\$91,366 58
June, 1852.....	73,583 61

Increase.....	\$17,772 97
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Total receipts for six months ending June 30, 1853.....	\$485,766 29
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Total receipts for six months ending June 30, 1852.....	295,535 95
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Increase.....	\$190,230 34
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Total Receipts for year ending June 30, 1853.....	\$1,000,308 63
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Mr. Stone, the Superintendent of this road, has retired from its management, and L. Tilton, Esq., late Superintendent of the Fitchburg railroad, takes his place.

#### Liabilities of Public Carriers.

A case of much public interest was recently tried in the Circuit Court for Ulster County, in which O. S. Bonesteel was plaintiff, and Messrs. Daniel Drew and Cornelius Vanderbilt, of New York, (owners of Vanderbilt's through line of steamers from New York to California, via Nicaragua,) were defendants.

It appeared in the evidence that the plaintiff purchased of the agent of the defendants through tickets to San Francisco. One promised him passage by the steamer Prometheus to Greytown, another, across the Isthmus by the accessory Nicaragua Transit company's line, a third by the steamer North America to San Francisco.

He had been induced to purchase these tickets by advertisements claiming a superiority for this line over all others in regard to speed, safety and comfort, and to its passage through a healthy country. It also appeared that statements had been made by Vanderbilt personally, that at Greytown the passengers would be changed to the river steamboats immediately, and by them ascend the San Juan river, which has its source from Lake Nicaragua. Thence there would be a land carriage of twelve miles to San Juan Del Sur, on the Pacific. The passage was to be accomplished in 40 hours, and the delay on the Isthmus not to be longer than 15 days.

The plaintiff, in company with 650 passengers, sailed in the Prometheus. Arriving at Greytown, they were compelled to quit the vessel, and remain for eleven days subject to its unhealthy climate and miserable fare. They were then taken across the Isthmus in boats overcrowded with passengers, which frequently grounded in the river, forcing these passengers to wade in the water to assist in their onward progress. The passage lasted nine days.

At San Juan del Sur they waited in vain for the North America, which vessel had previously been wrecked. The Monumental City was sent in her place, but could not, from its inferior size, take half the number of passengers in waiting. Afterwards the steamers Pacific and Independence, belonging to the same line, came to port, but refused to allow the plaintiff passage, being also filled beyond their capacity with passengers, many of whom held tickets of a subsequent date to plaintiff's, and arriving in subsequent steamers to the Isthmus. It also appeared that tickets had been sold by persons connected with some of these boats to transient passengers.

Waiting thirty days at San Juan del Sur, to secure a passage to San Francisco, plaintiff returned to New York, having in the meantime been exposed to the disease of the climate, which carried off his companions at the rate of four or five daily, and to a miserable fare, among the items of which are included monkey soup, guano (lizard) steak, apple sauce with turpentine, and other delicacies of a like nature, for which they paid the sum of three dollars daily, inclusive of one dollar for water.

On their return, remonstrating with Vanderbilt for sending away passengers with the Northern Light, a steamship which sailed after the loss of the North America was known in New York, the passengers of which over crowded the Isthmus and took precedence of those of an earlier date for passage on the Pacific, he told them that it was more profitable to pay damages than to send the

Northern Light empty, and forego the passenger money.

The counsel of plaintiff summed up this passage money at \$212,000. Taking also the number who had died on the Isthmus, it was found that the saving by their deaths to the Vanderbilt line was \$33,500.

The points taken by defendants were first—that they were severally, not jointly liable; second, that the loss of the North America by the act of God, discharged their liability as common carriers; and third, that in any event, they were only liable for the passage from San Juan del Sur to San Francisco.

The Judge charged that the advertisement held the defendants, as a contract, to perform all which they set forth; and that for its omissions the plaintiff was entitled to recover the damages he actually sustained, in the loss of his passage money and expenses while living on the Isthmus, together with the loss of his time. He further held, that if this contract was violated in a fraudulent and oppressive manner, the plaintiff was entitled to exemplary damages.

The Jury by the verdict, it is generally believed, intended to express their disapprobation of the indifference to life and comfort marking the California passenger trade, as demonstrated by the evidence in this case, and to correct its evils by the only method calculated thoroughly to reach them.

#### Grand Trunk Railway Company of Canada.

The meeting of the Stockholders of the Grand Trunk Railway Company of Canada, was held at Quebec, on Monday, July 11th; at which time the necessary votes were passed, accepting the surrender of the St. Lawrence and Atlantic, and other roads in Canada, and merging the whole into one company, under the charter of the Grand Trunk Railway company of Canada.

All that is now required to consummate this great scheme is the signing of the lease of the Atlantic and St. Lawrence Road from Island Pond to Portland. The terms of this lease are all agreed upon, on both sides; and on the arrival of the Hon. Mr. Jackson from England, and the Hon. John Ross from Canada, the papers will be executed. For greater security of all parties, the lease is made to Messrs. Jackson and Ross as Trustees, for the benefit of the Grand Trunk Railway company, with a right to assign the same to said company on request, on their receiving further legislative power as may be required.

Mr. Jackson, accompanied by his partner, Mr. Betts, and Robert Stephenson, the great engineer, were to sail from Liverpool on the 16th inst., and may be expected in Portland in all July, at the furthest.

The organization of the Grand Trunk Railway company is reported as follows:—

President, Hon John Ross.  
Vice President, B. Holmes, Esq.  
Chief Engineer, Alex'r McKenzie Ross.  
Assistant Engineer, Samuel Keefer.  
Secretary, C. P. Roney, Esq.  
Superintendent, Samuel Bidder, Esq.  
Agent at Portland, J. S. Little.  
Accountant at Portland, C. E. Barrett.

We understand that the company have fixed the prices of transportation of Flour from Montreal to Portland, at 40 cts. per Bbl.

We are informed, also, that there is to be a large Store House at Island Pond, from which point, Produce will be sorted and loaded for the various way stations, as the same shall be required for consumption.—State of Maine.

Hon. Samuel P. Shaw has been elected Treasurer of the Somerset and Kennebec railroad company, vice I. C. Johnson, resigned.

**Cincinnati, Union and Fort Wayne Railroad.**

The company constructing this road, was incorporated under the laws of Indiana, on the 15th day of February, 1853, and organized on the 22d of the same month. The officers of the company are:

Jer. Smith, president, Winchester, Ind., W. P. Debolt, secretary, and Jonas Votaw, treasurer, Union City, Ind., and R. M. Patterson, engineer, Indianapolis, Ind.

**Directors.**—Geo. Carlisle, Cincinnati, Ohio; Jer. Smith, Winchester, Ind.; B. W. Hawkins, Union City, Robert Huey, Jay, C. H., Theophilus Wilson New Corydon, S. L. Rugg, S. S. Mickle, Joseph P. Nuttman, F. P. Randall, Decatur, Ind.

The company have the grubbing under contract, and at the July session of the board, they directed a letting of the grading, bridging and furnishing ties, which is to take place on the first of September next. They also invite proposals for furnishing the iron, laying and ballasting the track, and preparing the road for use.

**Savannah River Valley Railroad.**

We learn from the Savannah News that a meeting was held at Dorn's Mine, in Abbeville District, on the 11th inst. at which books of subscription to the Savannah River Valley Railroad were opened. Mr. Dorn subscribed \$100,000, and Mr. Floyd, agent of the New York Gold Mining company gave assurance that New York capitalists would take that amount, or double it, if necessary to secure the charter. At Hamburk over \$75,000 have been already subscribed.

**Vincennes and Paducah Railroad.**

At a meeting of the stockholders of this company, held at Paducah, on the 30th ult., the following named gentlemen were elected directors for the present year:

**Paducah**—L. M. Flournoy, and W. F. Norton.

**Vincennes**—A. T. Ellis, C. M. Allen, A. Smith, Thos. Bishop, W. E. Browne.

**Cincinnati**—H. H. Goodman, and C. W. West. **Illinois**—J. G. Bowman, V. B. Bell, E. B. Webb.

At a meeting of the Directors held on the same day, the following officers of said company were elected:

President—A. T. Ellis.

Secretary and Treasurer—J. C. Bowman.

Chief Engineer—N. A. Gurney.

The Cleveland, Columbus and Cincinnati Railroad have contracted for 8000 tons of rails for a double track from Cleveland to Gallion.

The city of Alexandria, Va. has voted a subscription of \$200,000, to the Manassas Gap railroad.

**Commissioners Agreed upon.**

We understand that the Board of Directors of the Illinois Central Railroad and the Northern Indiana and Chicago Railroad have agreed upon William H. Swift, of Boston, Gen. Wilkinson, of the State of New York, and William H. Broadhead, chief Engineer of the Milwaukee and Mississippi road, as Commissioners to settle the mode and manner of crossing, and other questions between the two companies, relative to the crossing of their roads near this city. This exciting question seems to be in a fair way to be speedily settled.—*Chicago Tribune.*

**AMOSKEAG MANF'G CO.**

MANUFACTURERS of LOCOMOTIVE and STATIONARY STEAM ENGINES, Boilers, Cotton and Woolen Machinery, Tools, Turbine Wheels, Mill Work and Castings of every description.

MANCHESTER, N. H.

WM. AMORY, Treasurer, 65 State st., Boston, Mass.  
O. W. BAYLEY, Agent, Manchester, N. H. 17 July 6.

**To Contractors.**

**SEALED PROPOSALS** will be received at the Engineer's office of the Lexington and Big Sandy Railroad, in Mt. Sterling, Ky., until Aug. 10th, at sun down for the graduation and masonry of the whole of said Railroad, a distance of 125 miles. Bids will be received for any number of sections, the company reserving the right to reject all propositions, if none are satisfactory.

Propositions are also invited by contractors of ability, for the whole road.

This road runs through some of the finest portions of the State, the facilities for the supplies of every kind being very abundant.

Plans and specifications may be seen at the office after July 1st.

J. B. WESTBROOK, Chief Engineer.  
Portland, April 9, 1853.

**Railroad Letting.**

**KENOSHA AND BELOIT RAILROAD.**

ON and after the first day of August next, and until the 15th of August, inclusive, proposals will be received, under seal, at the Office of the Kenosha and Beloit Railroad company, in Kenosha, for the construction of the entire road from Kenosha to the Rock River Union Valley Railroad, a distance of about 50 miles.

The proposals may be made for the grading, masonry, ties, and entire construction in a single contract—or for the same and all items separately. and in independent contracts by different individuals. They will likewise be received for the above in parts. The work will besides be divided into sections of moderate length, and proposals, as above, for a single section or any number of sections will be received.

Profiles and specifications may be inspected at the Engineer's Office in Kenosha, on and between the days above specified, and forms of proposals will be supplied to all who desire to take contracts.

ALEX. C. TWINING, Engineer.  
Engineer's Office, Kenosha, June 20th.

RICHARD NORRIS.

HENRY LATIMER NORRIS.

**Richard Norris & Son,**

NORRIS' LOCOMOTIVE WORKS, BUSH HILL, PHILADELPHIA.

MANUFACTURE to order Locomotives, exclusively, on any plan, or of any size—of best materials and workmanship. Their Works having been this year greatly enlarged, and furnished with the most approved Tools, they are enabled now, having a large number of Workmen employed, to execute orders with despatch.  
June 9, 1853.

**Railroad Iron.**

**623** Tons T Rails of good quality, 59 lbs. to the yard to arrive during July, for sale by  
JOHN H. HICKS, 90 Beaver st.

**Railroad Iron.**

**2000** Tons of Rails, weighing from 58 to 60 lbs. per yard of Favorite Patterns, now on hand in New York, For sale by  
W. F. WELD & CO.,  
42 Central Wharf, Boston.  
June 21, 1852.

**INDUSTRIAL WORKS.**

**BEMENT, COLBY, DOUGHERTY & CO.,**

IRON FOUNDERS AND MACHINISTS,

Callowhill Street, between Schuylkill Second and Third, PHILADELPHIA.

MACHINISTS TOOLS, particularly adapted for Railroad Work, MILL WORK, and Heavy Castings, for cupolas, buildings, etc.

E. D. MARSHALL, JAMES DOUGHERTY,  
G. A. COLBY, WM. B. BEMENT.

**Notice to Contractors.**

**ST. LOUIS AND IRON MOUNTAIN RAILROAD.**

**PROPOSALS** will be received at the office of the Company in St. Louis, Mo., for the Graduation, Masonry and Bridging of that portion of the St. Louis and Iron Mountain Railroad included between St. Louis and the Iron Mountain, or Pilot Knob, distance about 84 miles. The preliminary surveys and approximate locations are now complete, and the final location for construction in rapid progress, and may be closed by the 1st Sept. Meanwhile, profiles and plans, now ready, will, with examination of the country, give all necessary data.

The work on this road is heavy, including three tunnels, and much rock work and masonry, about 20 miles of the road, shows "side-hill" work, and the balance heavy through work. The Iron Mountain is 700 feet above the river at St. Louis; but two principal depressions are to be crossed before reaching that height. The country passed through is healthy and well watered.

Proposals will be received (by quantities) for the whole or a part of the road, but contracts will only be made with responsible parties. No contracts will be closed before the 15th of August, and no sooner thereafter than satisfactory offers are received from responsible parties. The road will hereafter be extended to the Arkansas line, to connect with the Cairo and Fulton road, and a branch to the Mississippi River, at Cairo or new Madrid, is also contemplated.

WM. M. M'PHERSON, Pres't.

THOS. S. O'SULLIVAN, Consulting Engineer.

J. H. MORLEY, Eng. in Charge.

4w. St. Louis, July 21, 1853.

**Notice to Contractors.**

**SEALED PROPOSALS** will be received at the Engineer's Office of the Pittsburg, Maysville and Cincinnati Railroad, in M'Connellsville, until the 20th of August, for the Graduation and Masonry of the line of road (about 35 sections) between the Muskingum River and the Central Ohio Railroad.

Bids enclosing proper testimonials will be received for the whole or any number of the above sections.

Plans and specifications will be ready for examination after the 20th of July.

The division between the Muskingum and Hocking Rivers will be offered for contract as soon as the location is completed.

ROBERT M'LEOD,

Chief Engineer.

M'CONNELLSVILLE, June 4th, 1853.

**Notice to Contractors.**

**JEFFERSONVILLE RAILROAD.**

**SEALED** Proposals will be received at the office of the Company at Jeffersonville, Indiana, until 10 o'clock, A. M., on Wednesday, the 7th day September, 1853, for the clearing, grading and bridging the road between Edinburg and Indianapolis.

Proposals may be made for sections, divisions, or the entire line, about 30 miles, payable in the 7 per cent mortgage bonds of the Company or part bonds and part cash, and also for payments entirely in cash.

The company reserves the right to accept such proposals as in their judgement will best secure the prompt construction of the road, and to reject all, if none are satisfactory.

The route traverses a fertile country, furnishing abundant supplies of all kinds, and the line is easy of access at all points.

Bidders will please give their post office address.

WILLIAM G. ARMSTRONG, President.  
Jeffersonville, July 9, 1853.